

[illegible]

*i*

[REDACTED]

[illegible]

FIGURE 1C

764	TCCAGCCCCACATGGAXGACCTGAXCCCTGCTGGGAGGCIXTCCGAGGTGGCCACCGAGCCTGCCCCCTGGA
761	T.....C..T...A.....C..G..A.....
770	GGG.....G..G...GCC..T...C..A.....A...I.....
	A.....C..A.....C..G.....T.....C.....C.....
834	GCTCGACITCCCCAAGXGCCCGGAGGGCCGAGCGGGCCTTACGGCCCTTCTGGAGAGGCTGGACIT
831	.....AA.....A.....A.....A.....I.....
840	.....CG..G..G..GACA...A...I.....T...GC...T...T...C..T.....
	.....C.....C..G.....C.....C.....C.....
904	CCGAGCCTCCGCCAGGTTGGGCTTGGGCTCGAGGGCCCGCAAGGCCCTGGAGAGCGCCCGCGCGCGCGC
901	.....T.....AA.....A.....A.....A.....
910	.....A.....G.....G..G.....G..G.....GCGA.....T.....
	.....C.....C.....C.....C.....C.....
974	CGGAGGGGGCTTCGTGGGCTTGTGCTTGGCGCCCGGAGCGGCAATGTGGCGGAGGCTTCGGCGCTGGC
971	.....G.....AAG.....T.....
980	.....T..T.....TC..T.....T.....C.....AAA.....
	.....C.....C.....C.....C.....C.....
1044	CGCGGCGAGCGAGCGCGCGCTCGACGGGCGGACGACAGCGCTTAXGGCGGCTXAGGGAGCTXAGCGAGCTC
1041	.....G.....C.....C..C..T..A..AA..C.....G.....
1050	.....G..CG...T.....A.....C.....G.....T.....G.....
	.....C.....C.....C.....C.....C.....G..A..A.....C.....

1

[illegible]

$$\frac{1}{\Gamma(\alpha)} \int_0^t (t-s)^{\alpha-1} f(s) ds = \frac{1}{\Gamma(\alpha)} \int_0^t (t-s)^{\alpha-1} f(s) ds = \frac{1}{\Gamma(\alpha)} \int_0^t (t-s)^{\alpha-1} f(s) ds = \frac{1}{\Gamma(\alpha)} \int_0^t (t-s)^{\alpha-1} f(s) ds$$

FIGURE 1F

SEQUENCE	AGACATCCCCCTCCGACCCGCGTGGCCACACCATCCCCCGCCCCCTTCGTCGGCCGAGGAGCGGCTGGGT	
SEQUENCE	.....G..T..G.....A..C.....C....	1814
SEQUENCE	.....G.....T.....C..C.....A.....C....	1811
SEQUENCE	.....C.....C.....C.....C.....T.....C....	1820
SEQUENCE	GTTCGTGGCCCTCGACTATACCCAGATAGAGCTCCGCTCCGCGCCAGCCCTCTCCGCGGACGAGAACCTG	
SEQUENCE	.....A.....G.....A.....G.....C.....	1884
SEQUENCE	.....T.....C.....T.....T.....C.....	1881
SEQUENCE	.....T.....C.....G.....C.....A.....	1890
SEQUENCE	ATCCCGGCTCTCCAGAGCGCGGACACATCCACACCCAGAGCGCGGAGCTGCATCTTCGCGCTCCCCCCCCG	
SEQUENCE	.....C.....G.....GG.....G....	1954
SEQUENCE	.....T.....A.....A.....T.....G....	1951
SEQUENCE	.....A.....A.....A.....A.....	1960
SEQUENCE	ACCGCGTGGACCCGCTGATCCCCCGCCGCGGAGAGGATGACCTTCGCGCTCTCTCAGCGCATCTCCCG	
SEQUENCE	.....A..G..A.....T.....GG..G.....G....	2024
SEQUENCE	.....A..G..A.....T.....GG..G.....G....	2021
SEQUENCE	.....A..G..A.....T.....GG..G.....G....	2030
SEQUENCE	CCACCGCCCTCTCCAGAGGCTTCCATCCGCTACGAGGAGCGGCTCGGCTTCATTCAGCGGCTACTCCAG	
SEQUENCE	.....A.....A.....T.....CCA.....T....	2094
SEQUENCE	.....GG.....T.....T.....T.....	2091
SEQUENCE	.....A..G.....T.....T.....A.....A....	2100

[illegible]

7

# FIGURE 1H

CCCCCTGGAGGCTGGAGTGGGATCGGGGAGGAGCTGGCTCTCGGGCAAGCACTAG	
.....A.....GA	
.....CC.....GT...	
.....T.....	

2498  
2496  
2505

2498 2496 2505



[REDACTED]

[illegible]

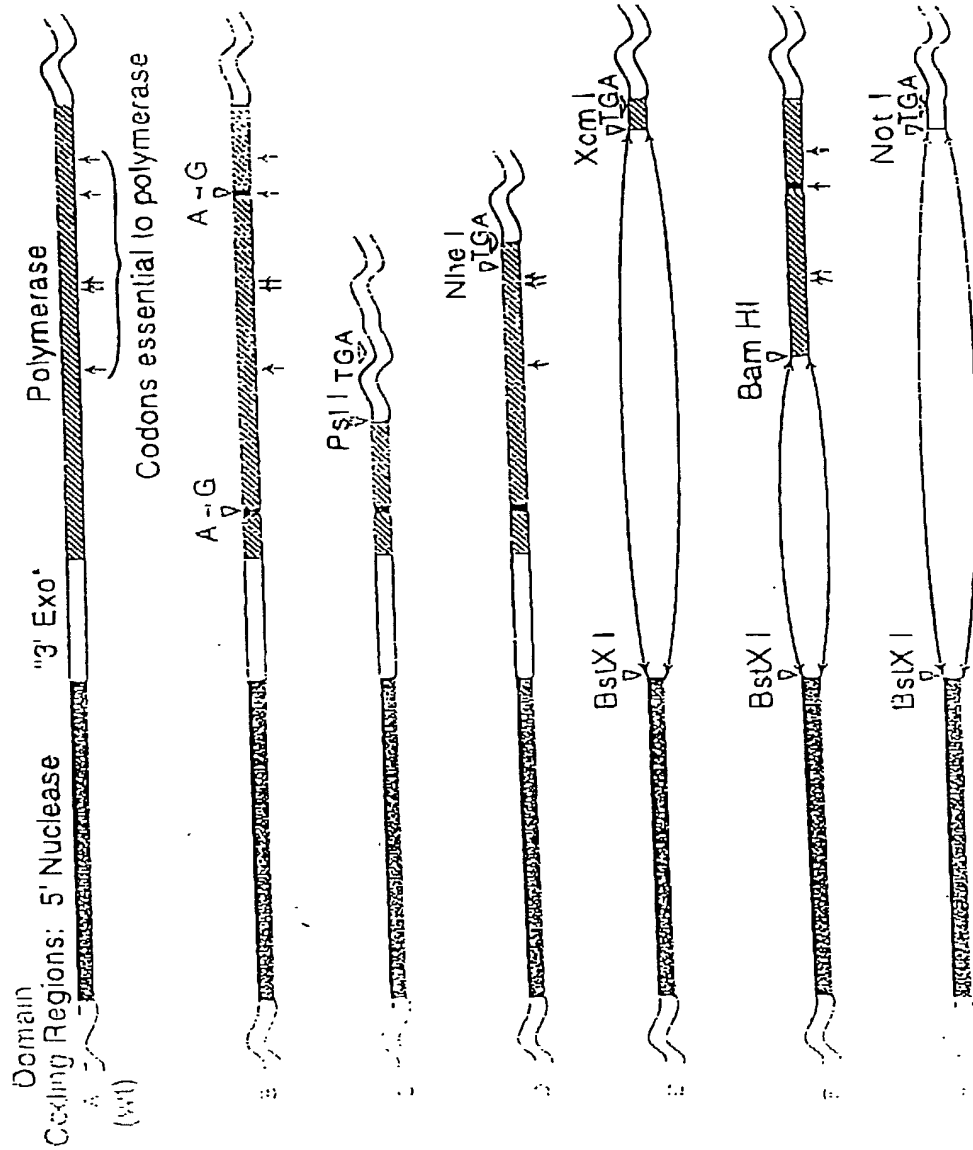
FIGURE 2B

SEQUENCE	AGLAKOLAVLALREGLDLPXGDDPHL LAYLLDPSHTITPEGVARRYGGEWTEOAGERALLSERLFXHLXX
418	S.....G.P.....E.....A.....A.....WC
419	.....F.E.....A.....OT.KE
420	.....S.....V.....AH.....HR..LX
SEQUENCE	RLEGEERLLWLYXEVEKPLSAVIAHMEATGVRLDVAYLOALSLEVAEEI RRIEEVFRLAOPFNLMSRD
488	R.....A.....A.....R.....A.....A.....
489	.....E.....R.....EA.V.O.....
490	.....K.....H.....L.....
SEQUENCE	OLERVLFDELGPALCKTEKTRSTSAAVLEALREAHPIVEKILQYRELTKLKHNTYIDPLPLXLPKPAIG
558	.....S.....O.I.....
559	.....OR.....A.....K.....
560	.....R.....L.....O.....H.....V.....S.....
SEQUENCE	RLBTRFHOTATACRLSSSDPHLOH PVRTPLGQRI RRAFVAEECWXLVALDYSOIELRVLAHLSGDEHL
628	.....I.....L.....
629	.....V.....V.....
630	.....A.....A.....
SEQUENCE	IRVFOEGROIHIOTASHMFCVPPEAVDPLWRRAAKTINFGVLYONSAHRLSDELAI PYEEAVAFIERYFO
698	.....E.....R.....O.....
699	.....S.....G.....G.....S.....
700	.....K.....V.....

FIGURE 2C

MAJORITY	SFPKVRAWIEXTLECGRRROYVETLFGRRYVPOLNARUKSVREAAERMAFHUPVOGTAADLMKLAHVKL	
NO PRO	.....E.....	768
NO PRO	Y.....G.....R.....	767
NO PRO	.....K.....	770
MAJORITY	FPRLEXWGAHNLQVHDEIVLEAPKXRAEXVAALAKEUMEGVYPLAVPLEVEVOXGEDWLSAKEX	
NO PRO	.....E...A...R.....I.....	830
NO PRO	.....O...L.....D...R.....W...O...L.....	831
NO PRO	.....R.....L...OA...E...A...KA.....M.....C	835

**FIGURE 3**



**FIGURE 4**

Genes for Wild-Type and Pol(-) DNAPT<sup>H</sup>

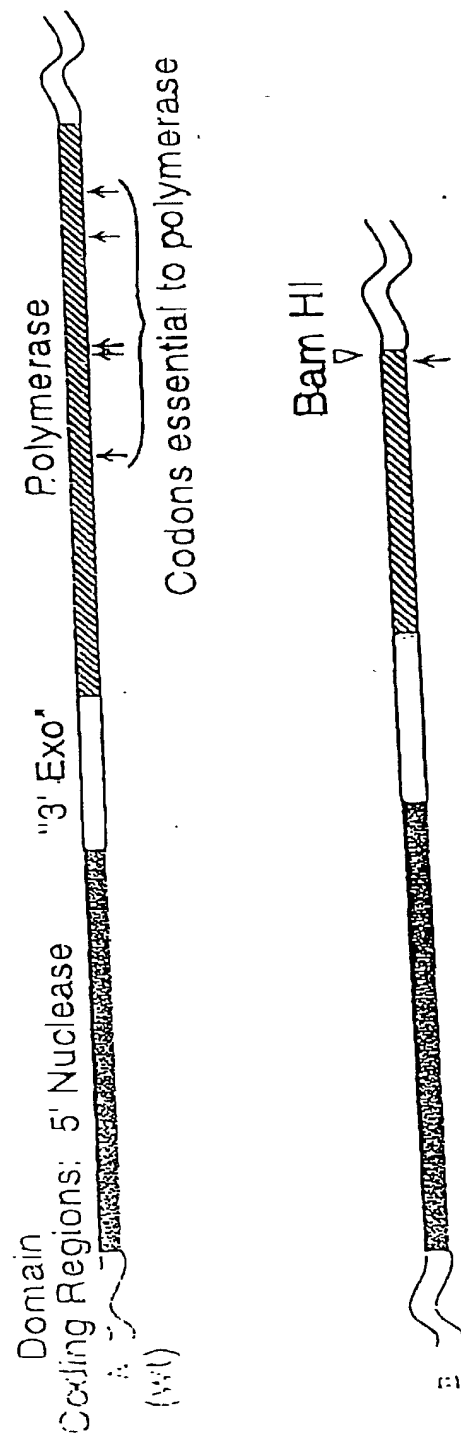
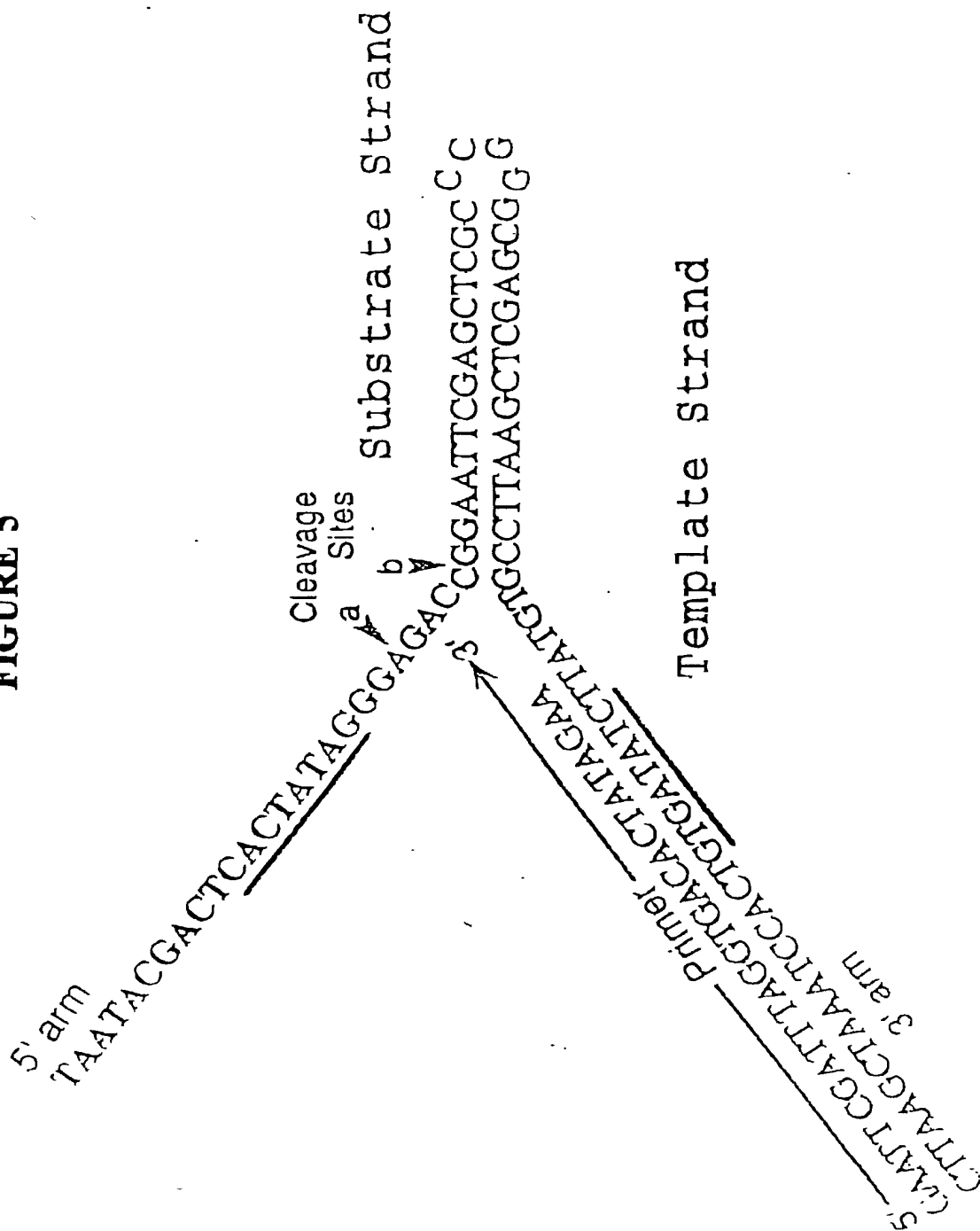


FIGURE 5



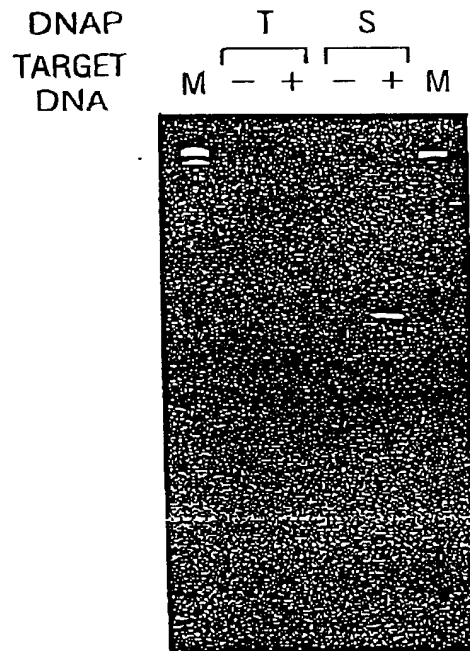


FIGURE 6

15

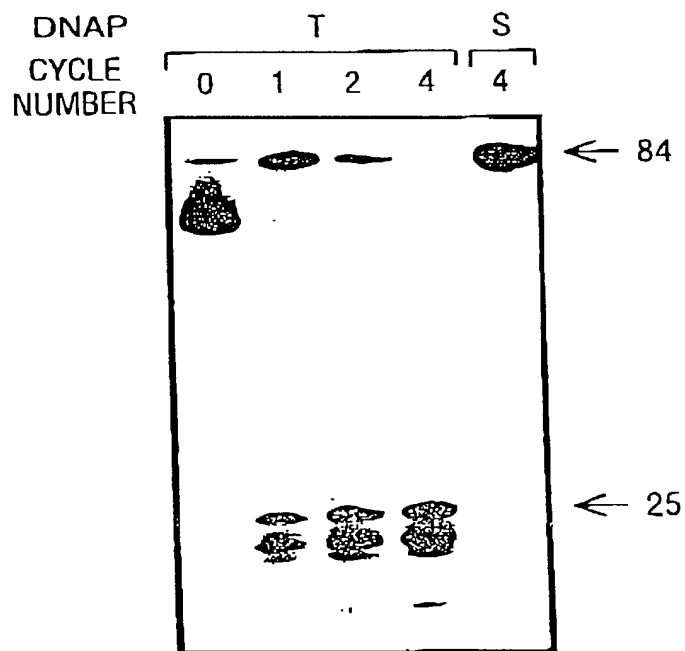


FIGURE 7



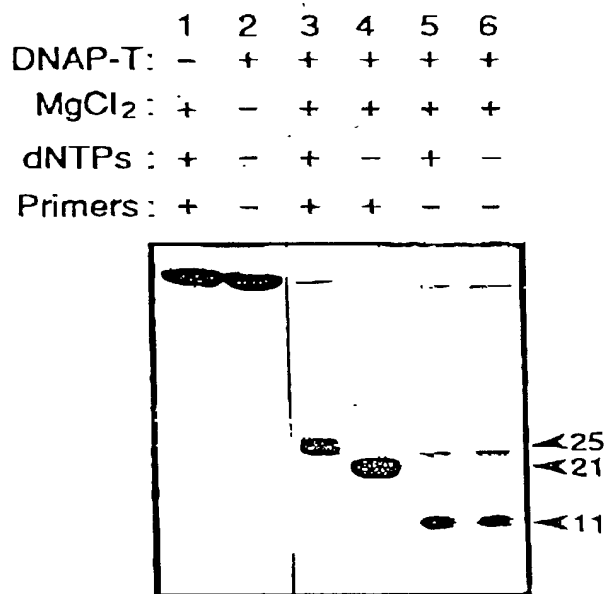


FIGURE 8A

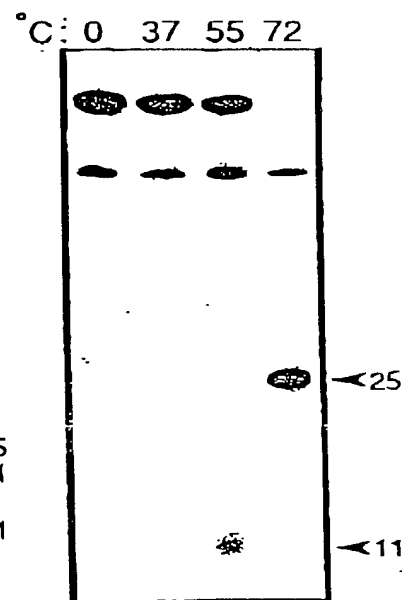


FIGURE 8B

17

[REDACTED]

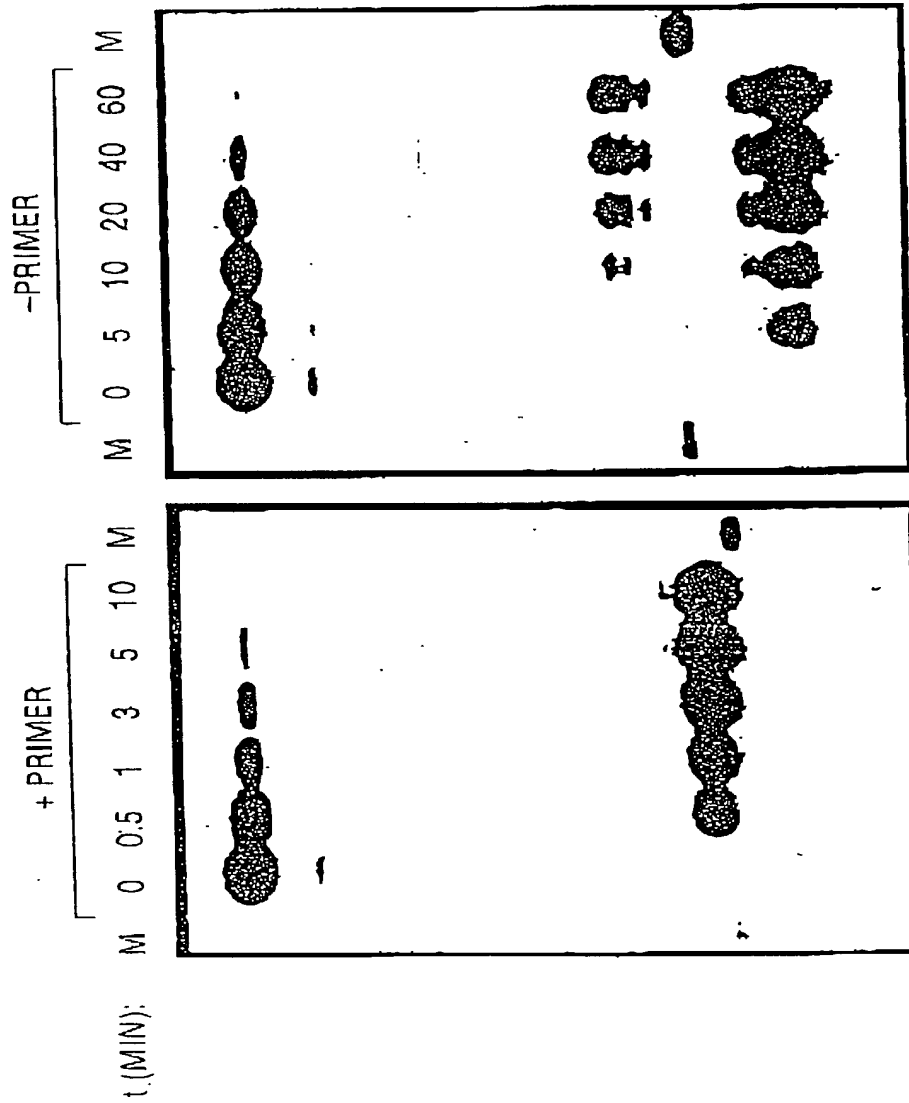


FIGURE 9B

FIGURE 9A





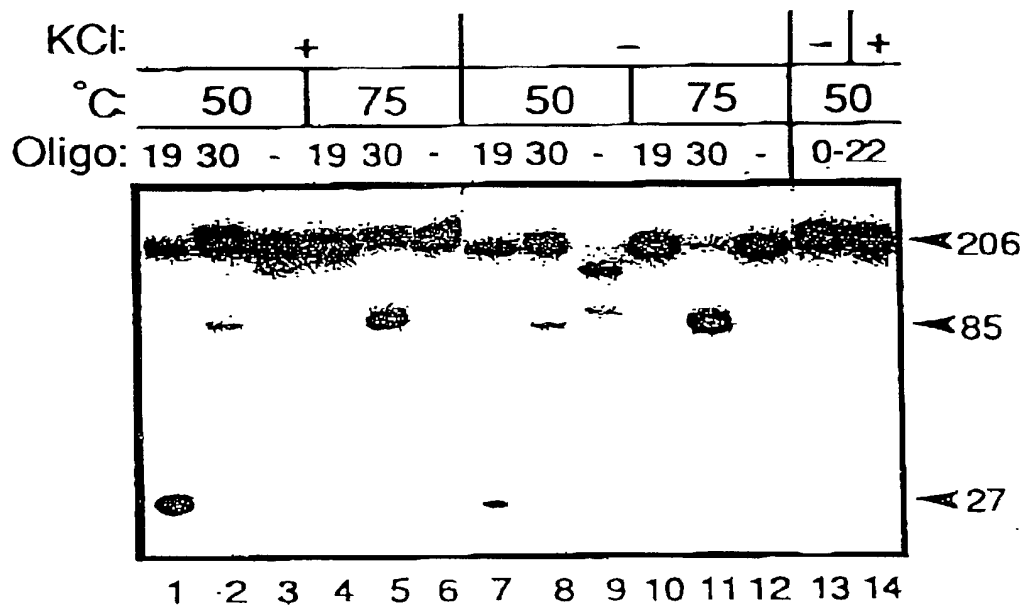


FIGURE 11B

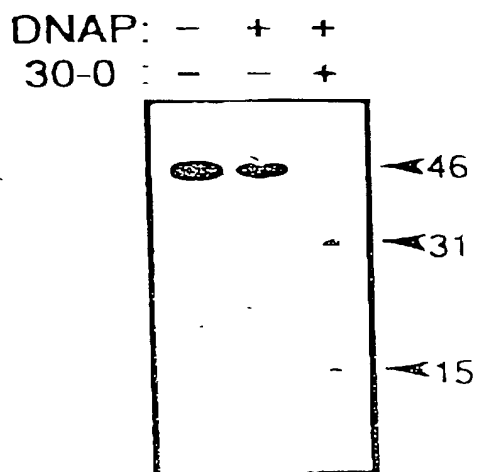
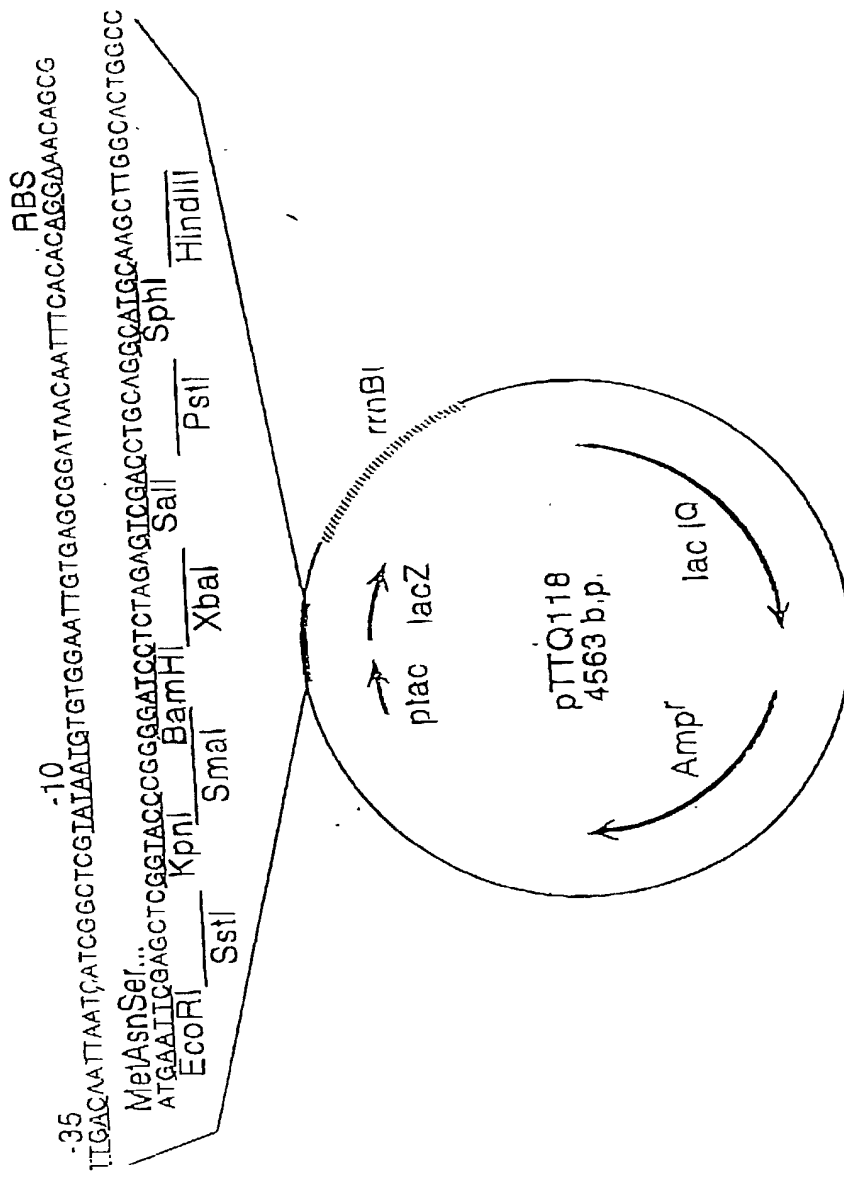


FIGURE 12B

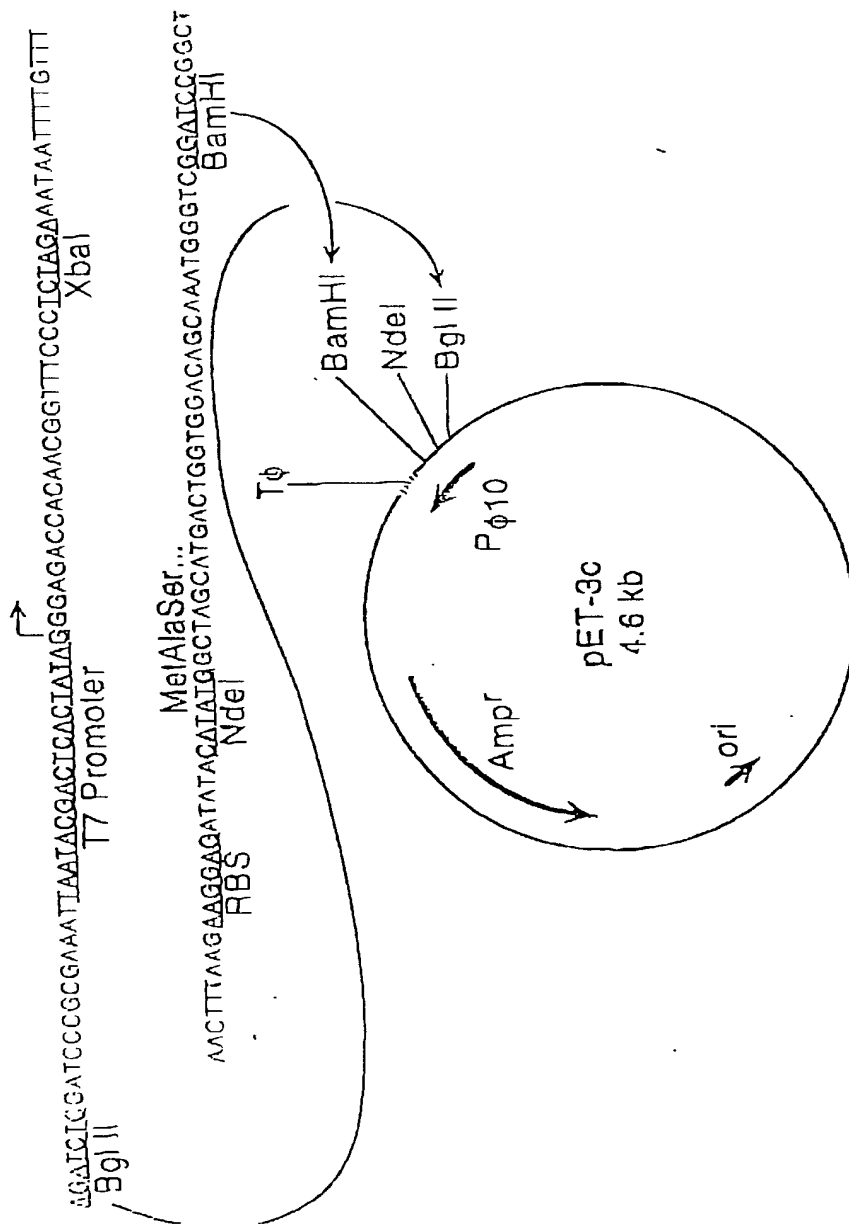
21

FIGURE 13



RBS: Ribosome binding site  
 plac: Synthetic lac promoter  
 lac I<sup>Q</sup>: Lac repressor gene  
 lacZ: Beta-galactosidase alpha fragment  
 rrnBI: E. coli rrnB transcription terminator

FIGURE 14



RBS: Ribosome binding site

P<sub>φ10</sub>: Bacteriophage T7 φ10 promoter

T<sub>0</sub>: T7 φ Terminator





	1	2	3	4	5	6	7
1							
2							
3							
4							
5							
6							
7							

CLEAVED SUBSTRATE

[illegible]

## FIGURE 16

25



INCORPORATED  
32 P dCMP



ENZYME	Taq	-	Taq	4b	4c	4d	4e	4f
PRIMED M13	-	+	+	+	+	+	+	+

FIGURE 17

42



				UNMODIFIED				
				"4b"	DNAP Taq			
				2 PT. MUTATION SMALL ACTIVITY				
"4d"	NO POL. ACTIVITY			5	6	7	8	dNTP
1	2	3	4	-	+	-	+	

84 NUC. —

HAIRPIN TEST MODULE

CONVERSION TO DOUBLE STRANDED (COMPLETE EXTENSION OF PRIMER)

MULTIPLE BANDS CAUSED BY POLYMERIZATION

DESIRED PRODUCT 21 NUC.

SOME ABERRANT CLEAVAGE WITH "4b" BECAUSE OF RESIDUAL POLYMERASE ACTIVITY.

FIGURE 18B

[REDACTED]

# Ecol

GGATCC  
CTAGGAG  
P101 30-0-

T7

↑  
↓

Psil  
BspM I  
Sph I  
Hind III

CATAGCTGTTTCCGIGTGAATTGITA  
 GIATCGACAAAGGACACACTTAACAA  
 -Z- 48 Reverse

SP6

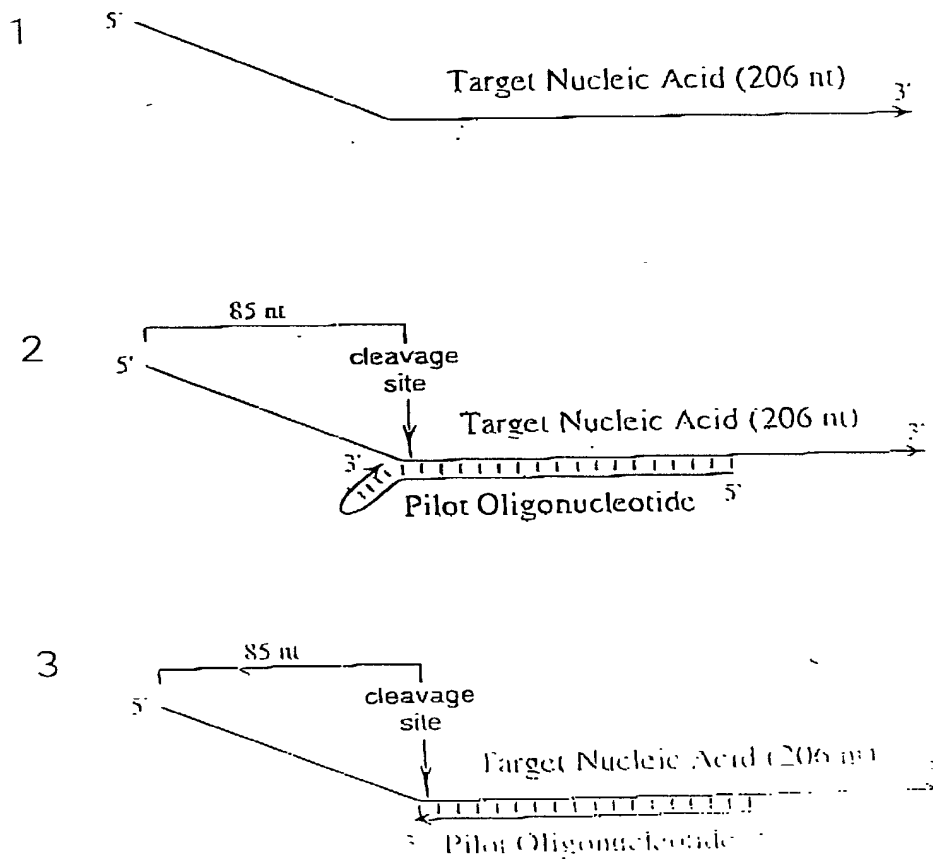
Page 100

...TCTTCTGACATACCA 228

CONFIDENTIAL

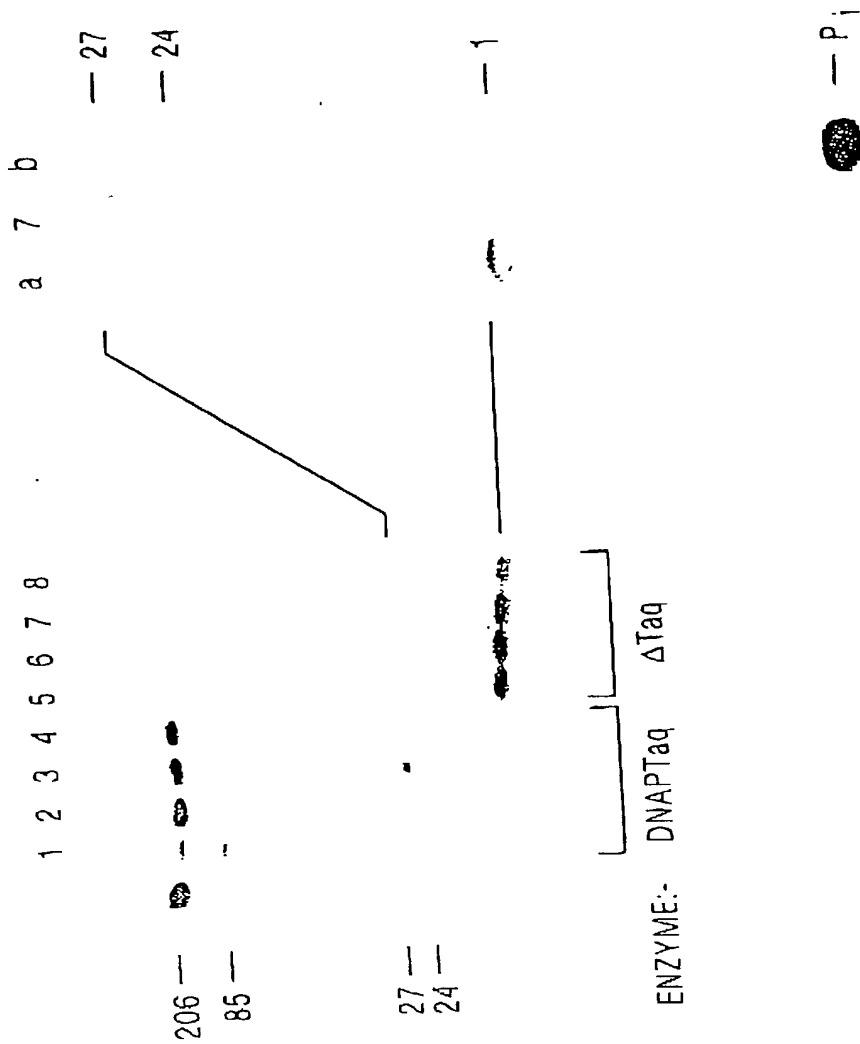
252

**FIGURE 20A**



30



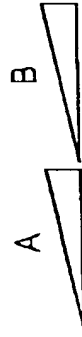


**FIGURE 21B**

**FIGURE 21A**

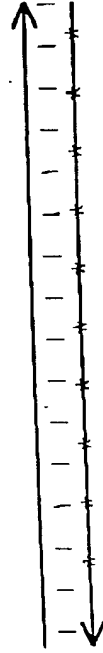


FIGURE 22A



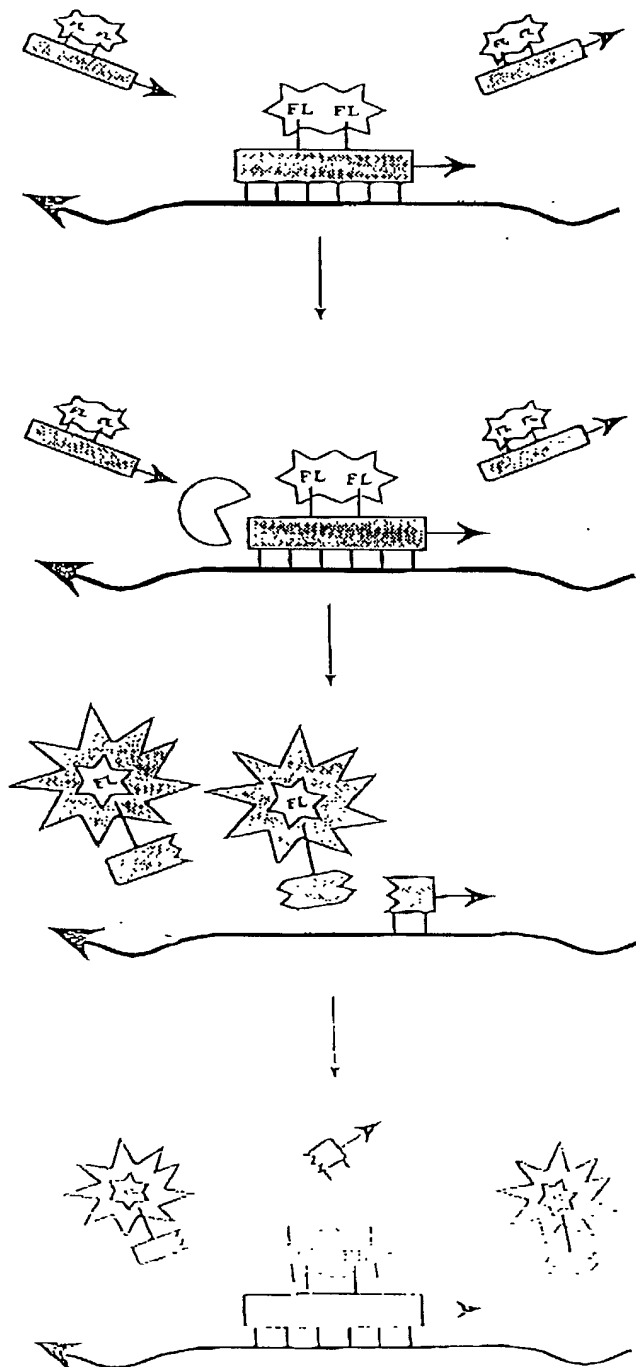
— 206

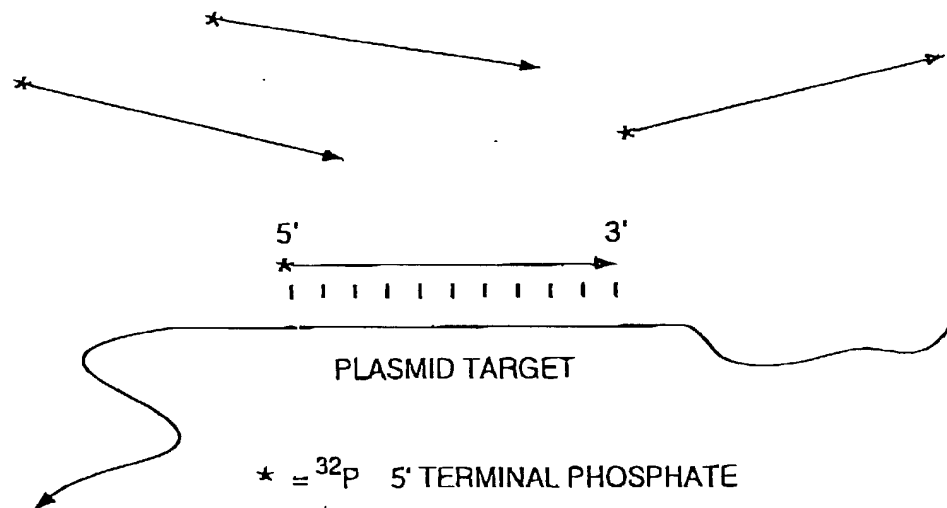
FIGURE 22B



\* = 32p

FIGURE 23



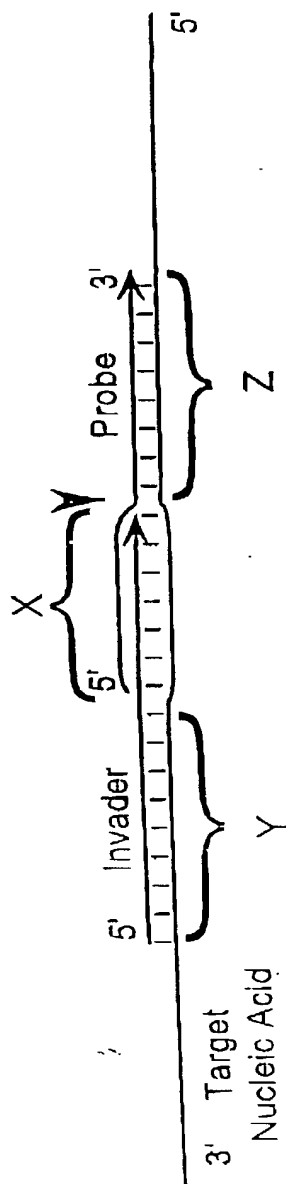


**FIGURE 24A**

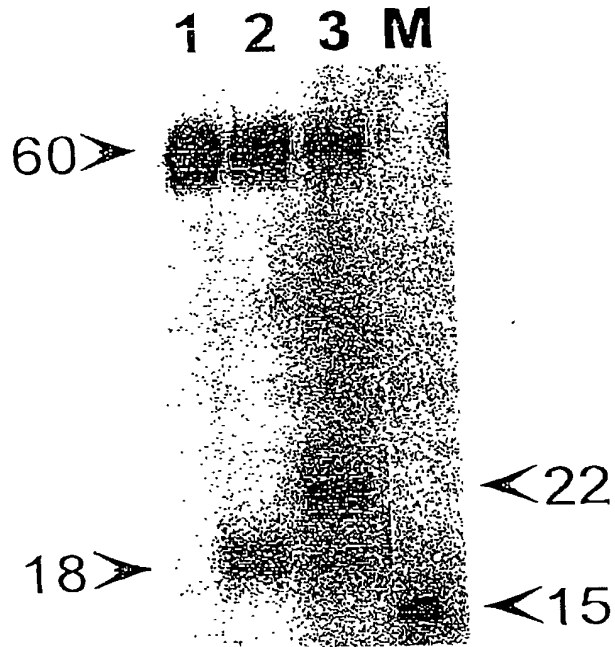
35



FIGURE 25

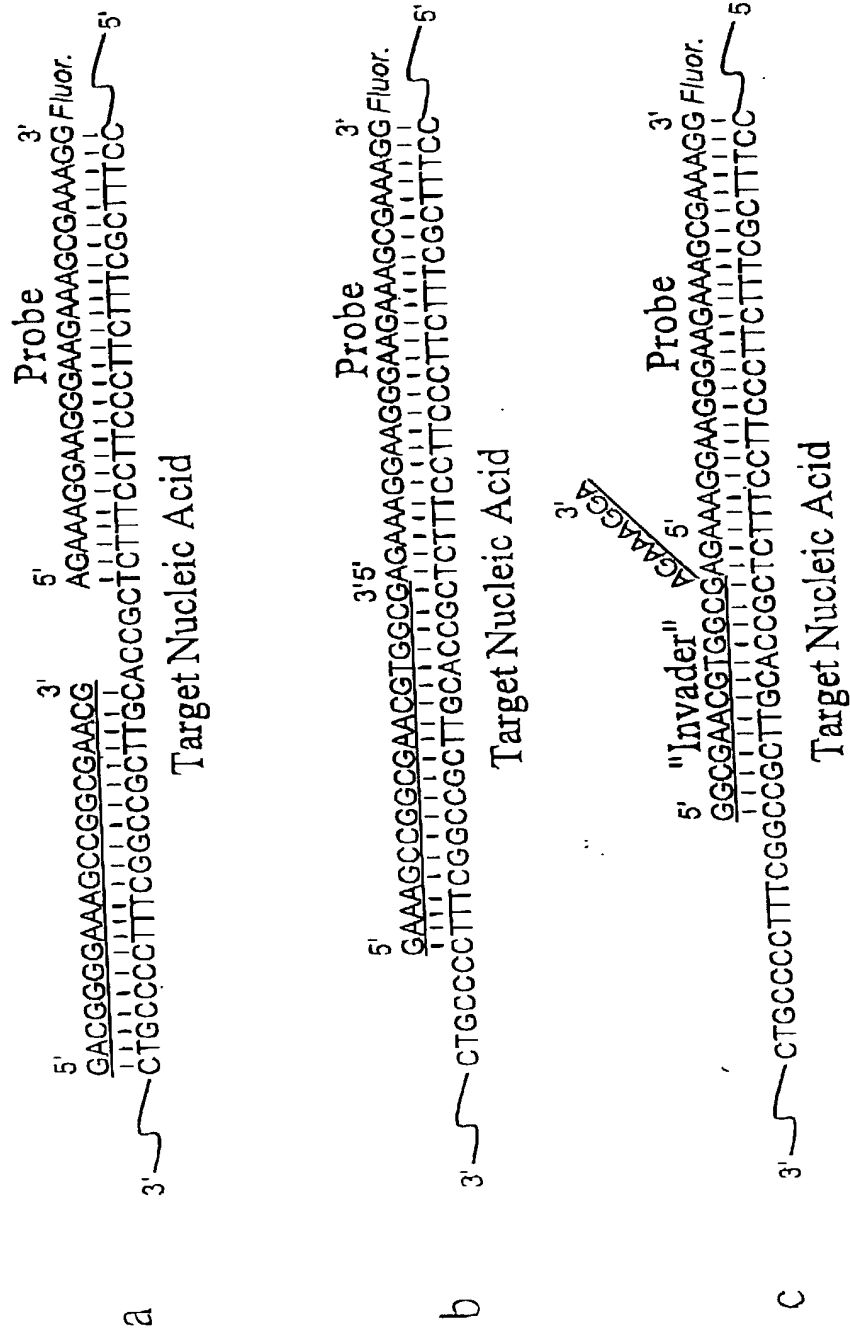






**FIGURE 27**

FIGURE 28





$$\frac{d}{dt} \left( \frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}, \quad \frac{d}{dt} \left( \frac{\partial L}{\partial \dot{y}} \right) = \frac{\partial L}{\partial y}, \quad \frac{d}{dt} \left( \frac{\partial L}{\partial \dot{z}} \right) = \frac{\partial L}{\partial z}$$

## FIGURE 29



7

9

5

→

2

5

\_\_\_\_\_

26A

4.

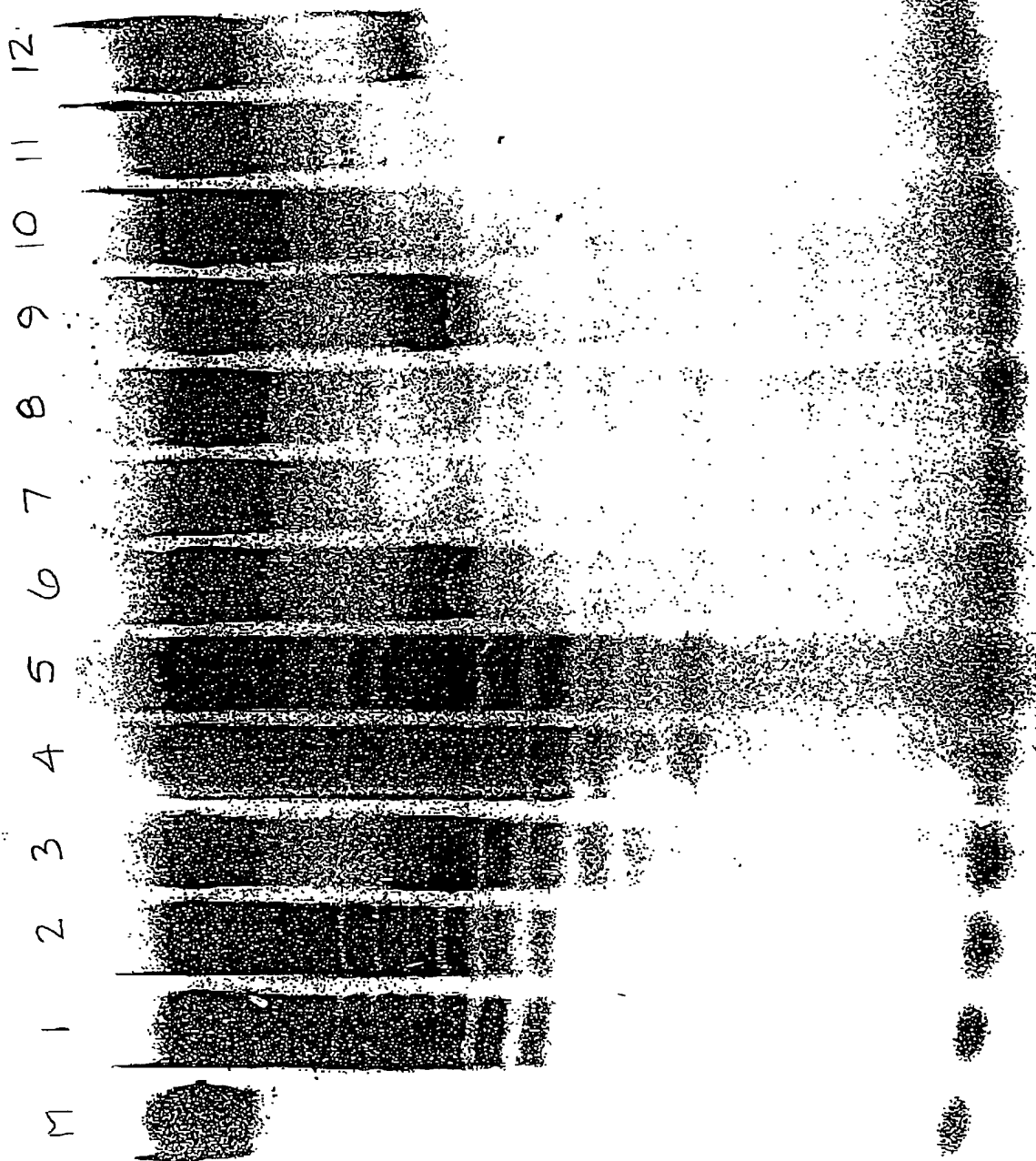
OTOLITH      • T. J. DUNN • J. H. C. DUNN •




— — — — —

11 10 9 8 7 6 5 4 3 2 1

**FIGURE 30**

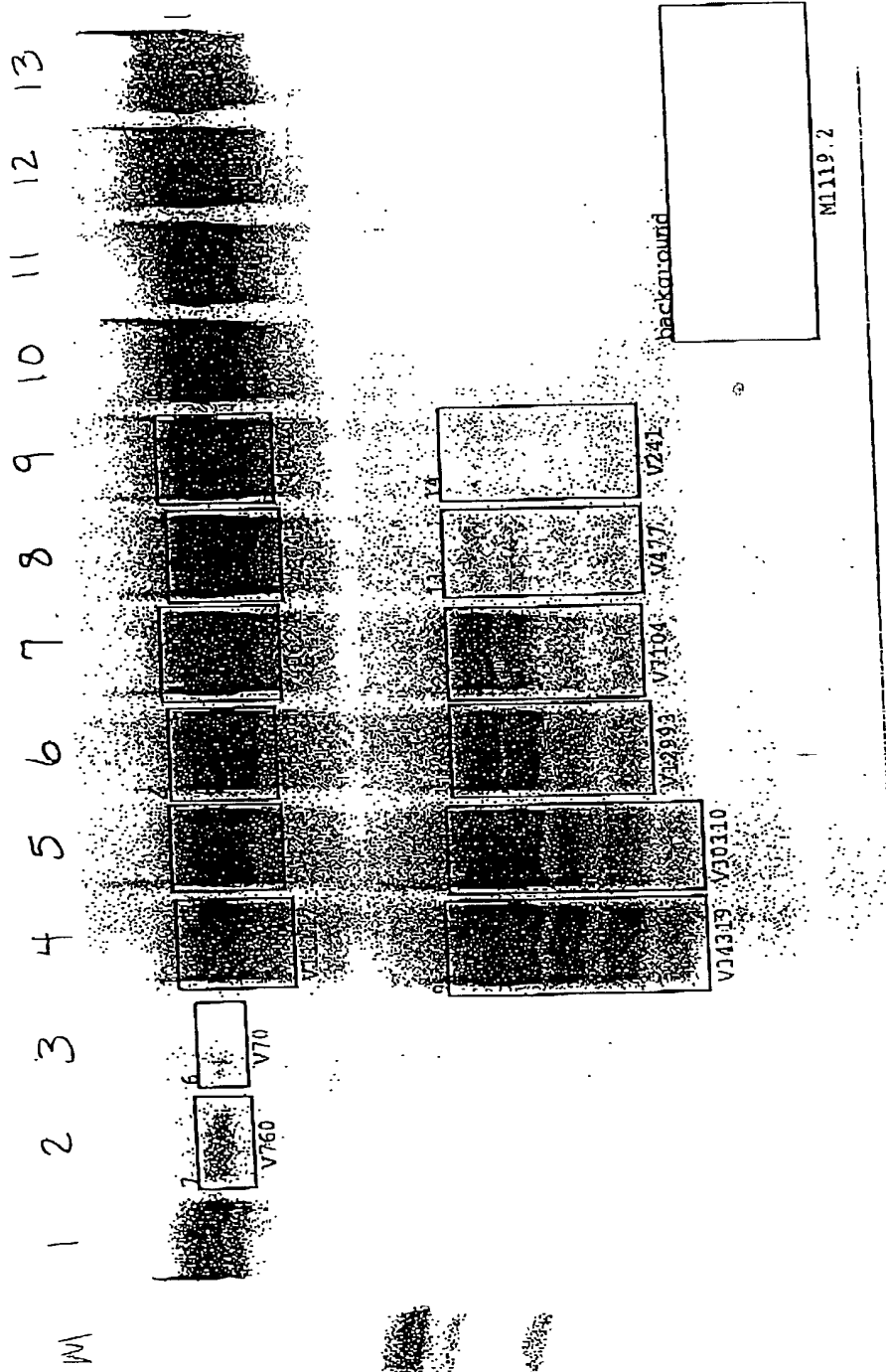


A  
6

42

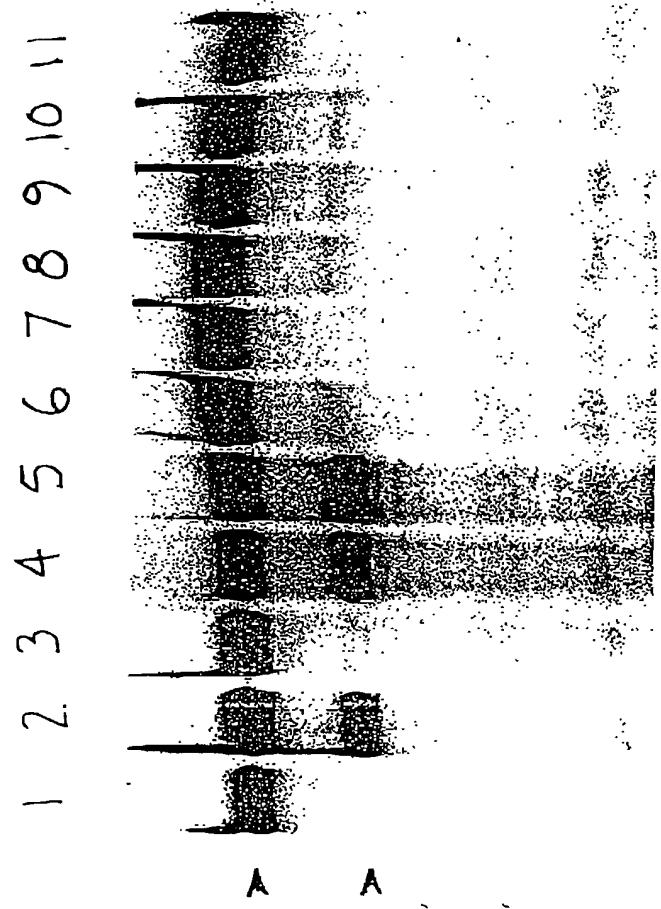


FIGURE 32



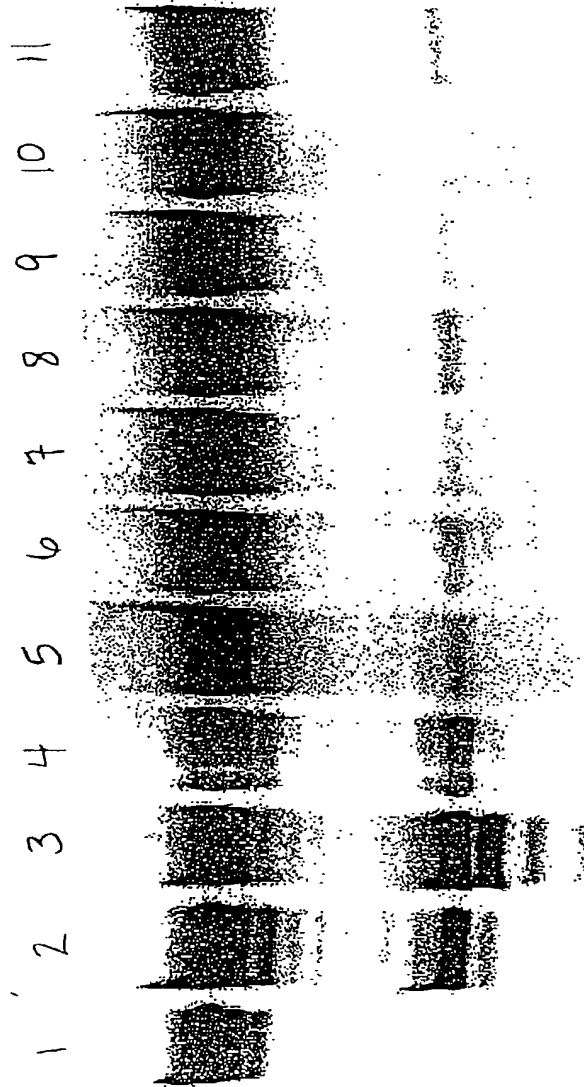
[Redacted]

FIGURE 33

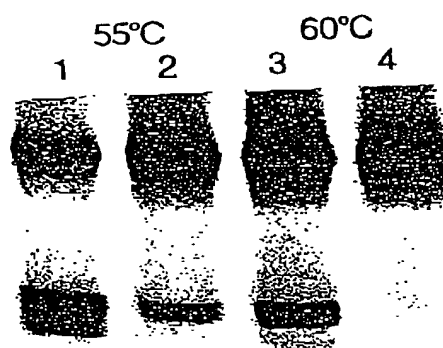


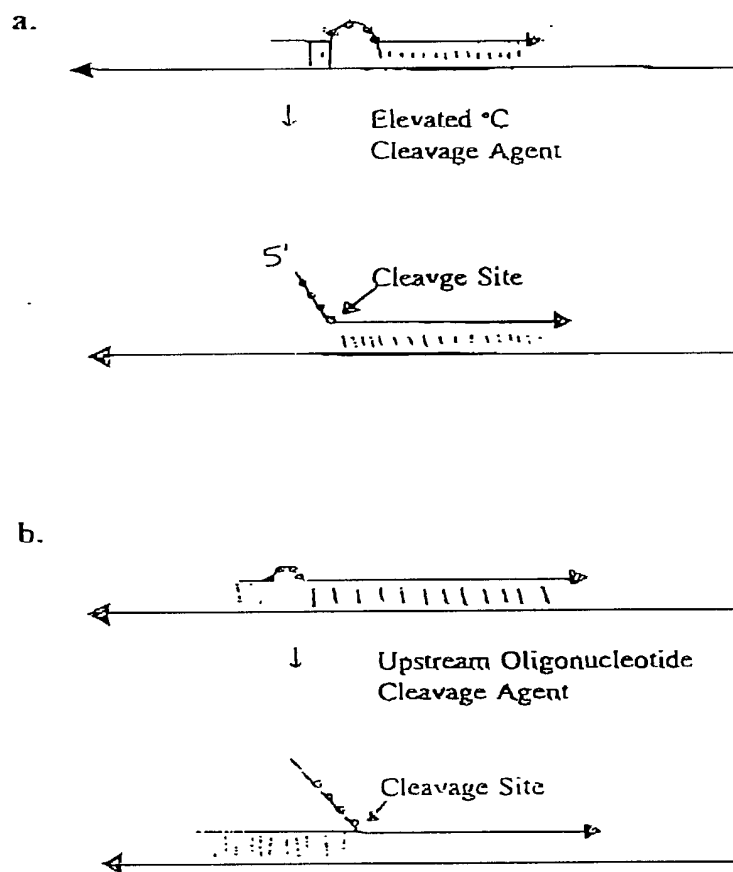
C/S

FIGURE 34



**FIGURE 35**





**FIGURE 36**



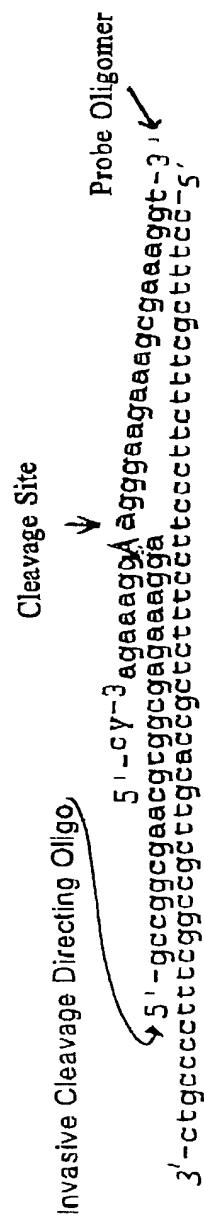
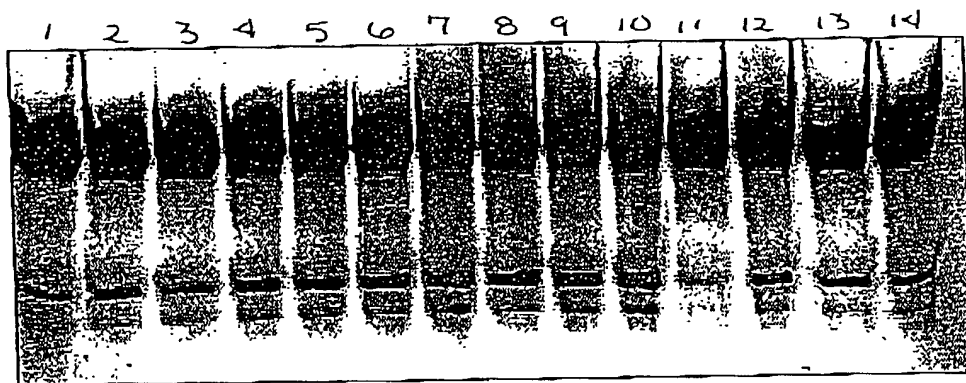


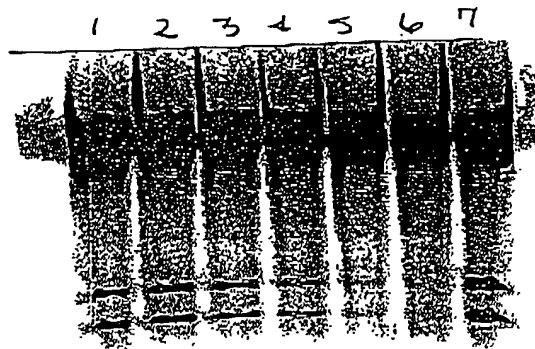
FIGURE 37



**FIGURE 39**

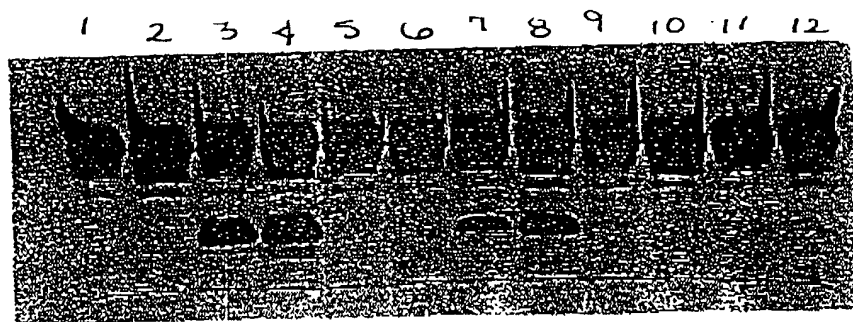


**FIGURE 40**



1 2 3 4 5 6 7 8 9 10 11 12

**FIGURE 41**



53

FIGURE 42A

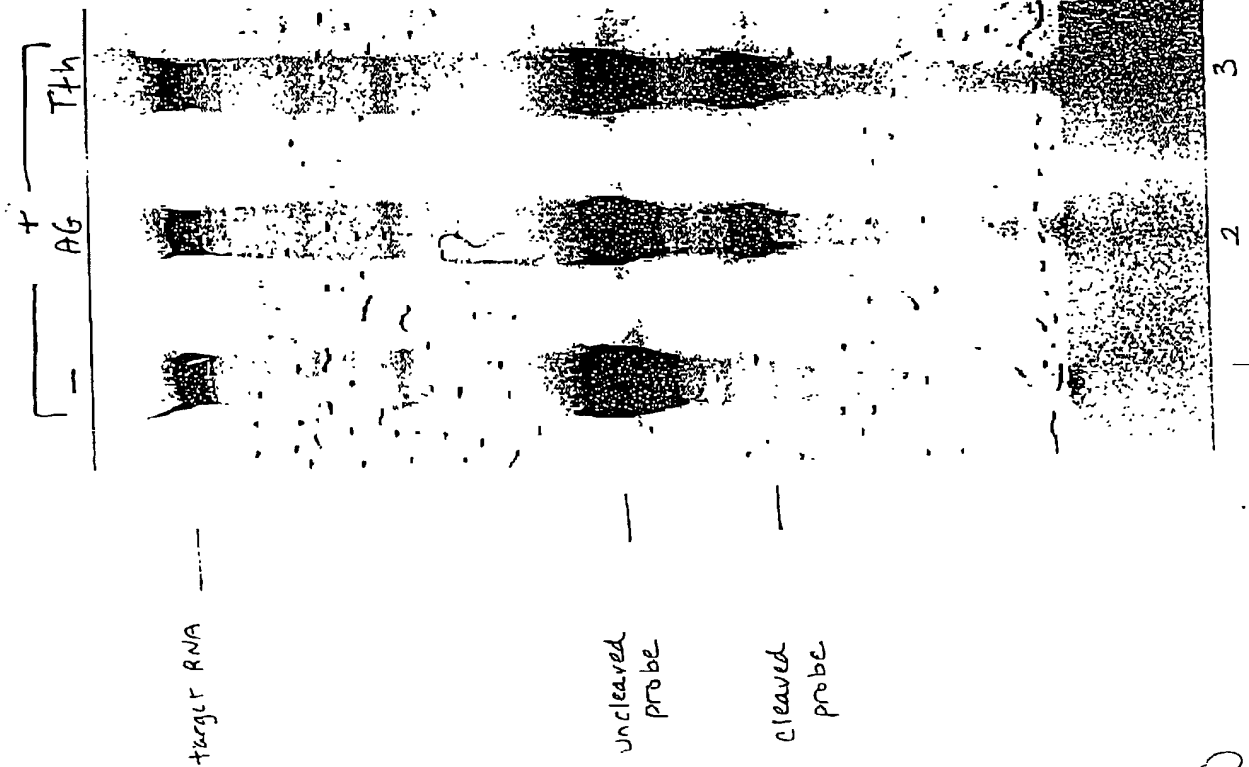


FIGURE 42B





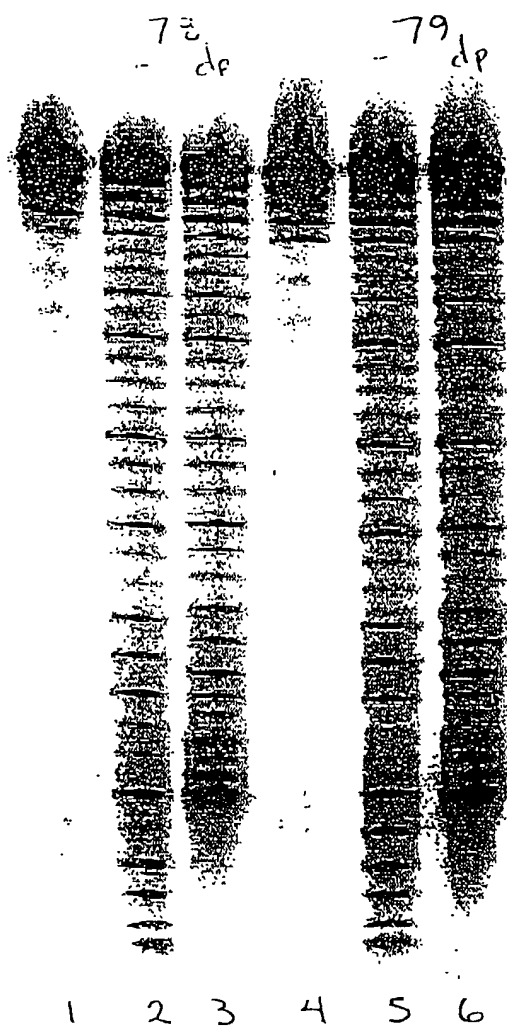


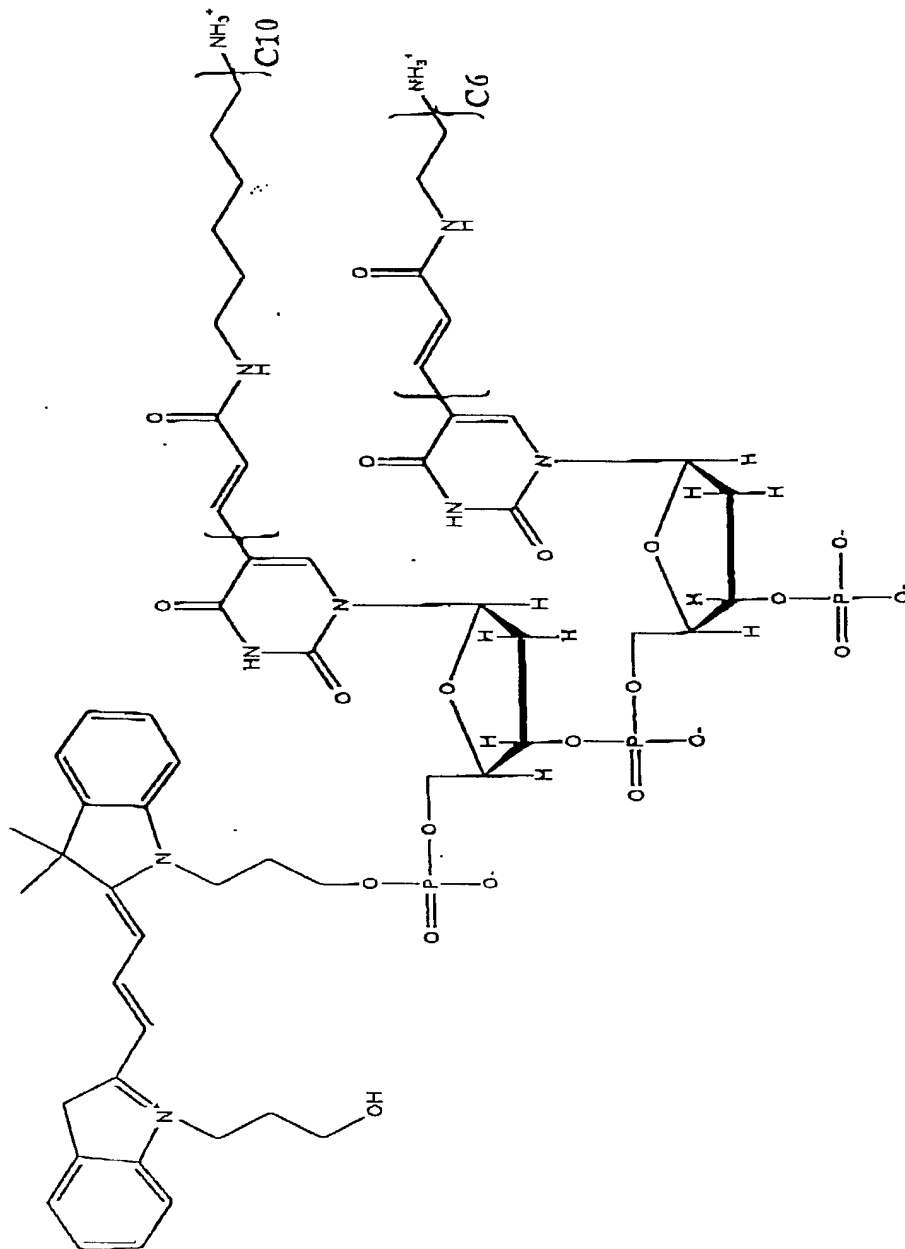
FIGURE 44



**FIGURE 45**

70 (C10 aminoT's)

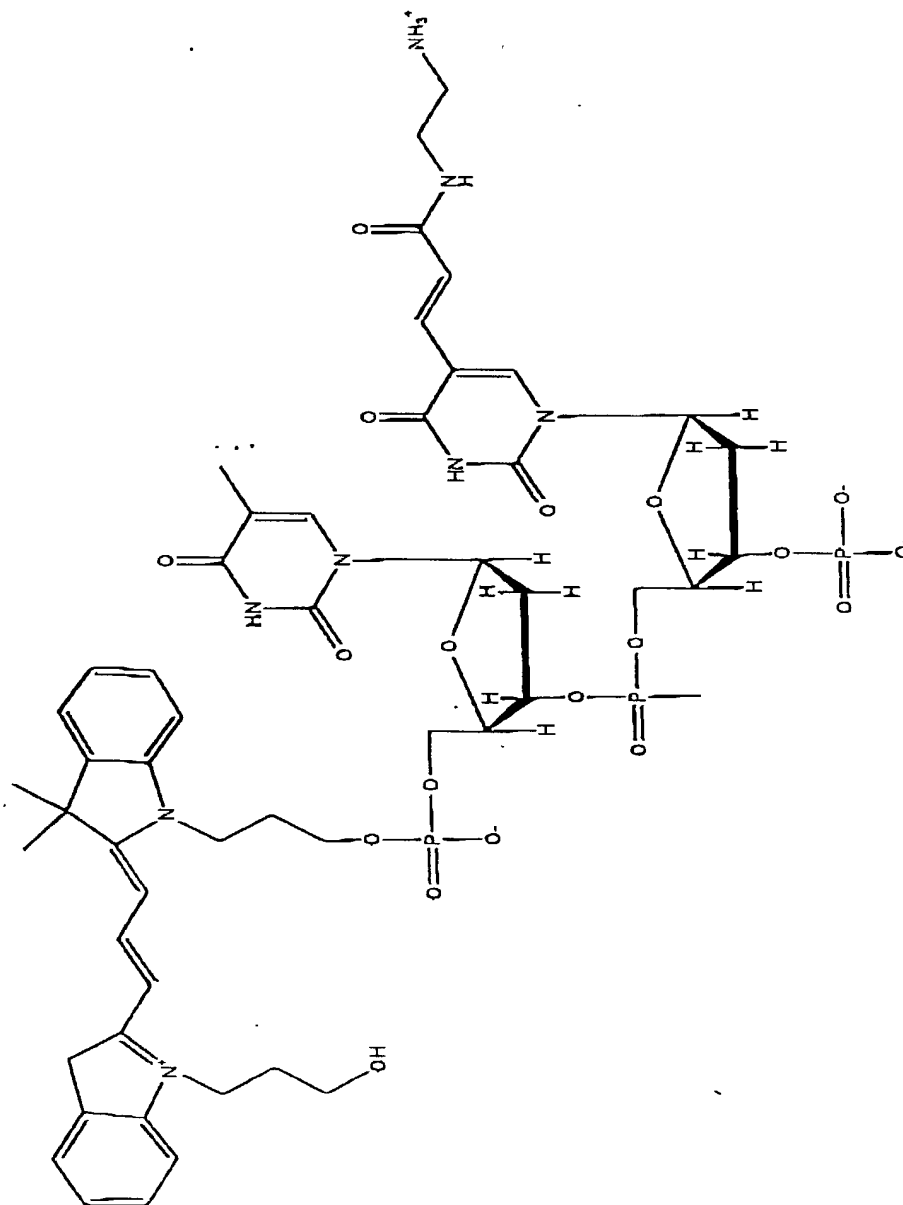
74 (C6 amino T's)



57

\_\_\_\_\_

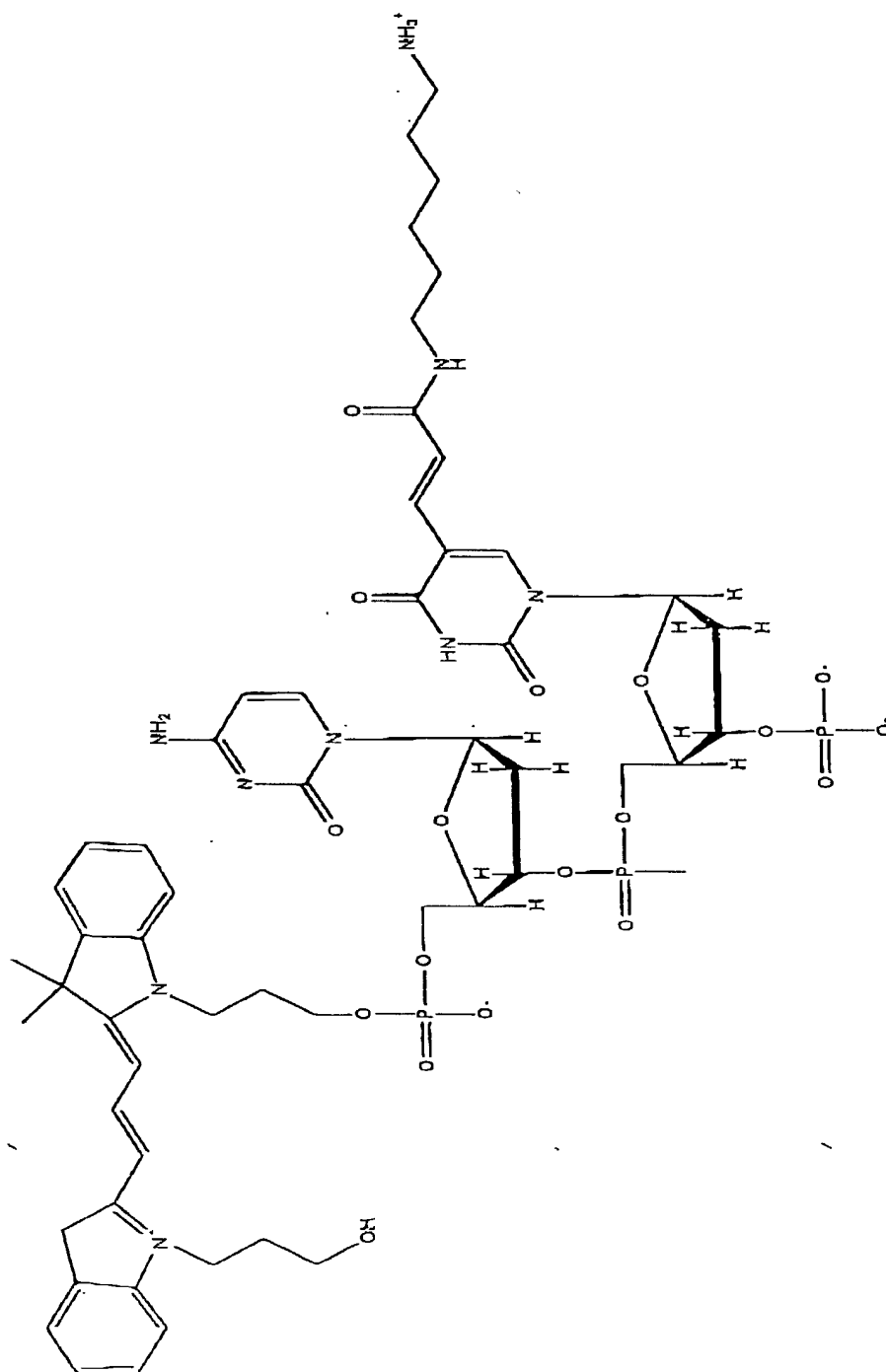
00076      \* T T DUTCH      \* T C CHN \*



5

FIGURE 47

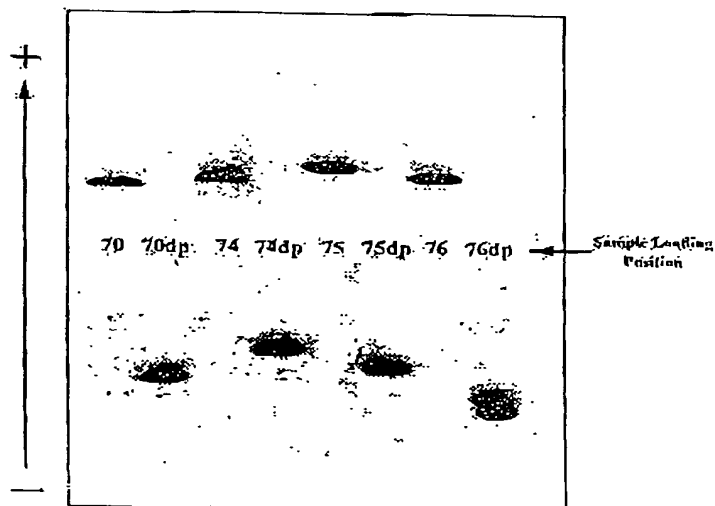
76



59

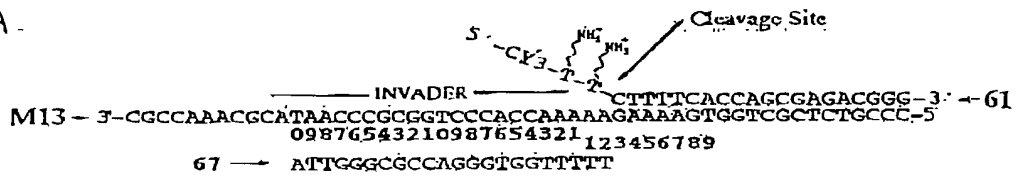
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

**FIGURE 48**



60

A.



B.

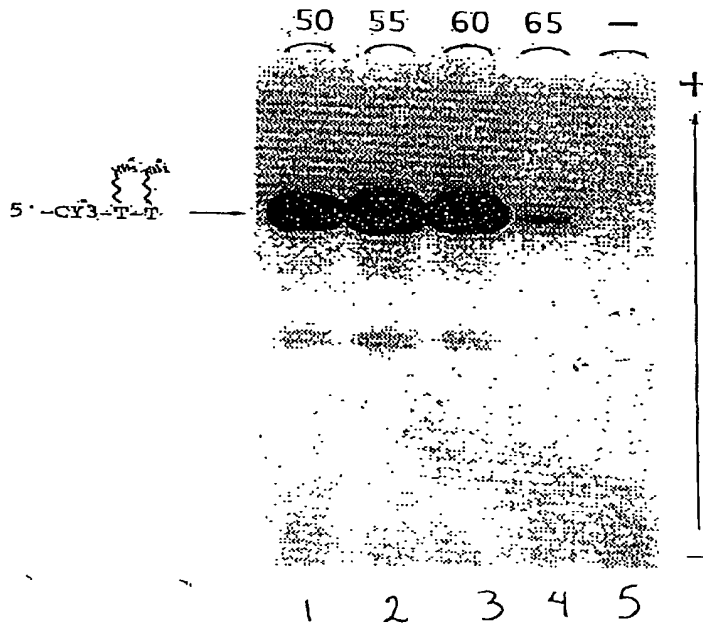


FIGURE 49

64

FIGURE 50

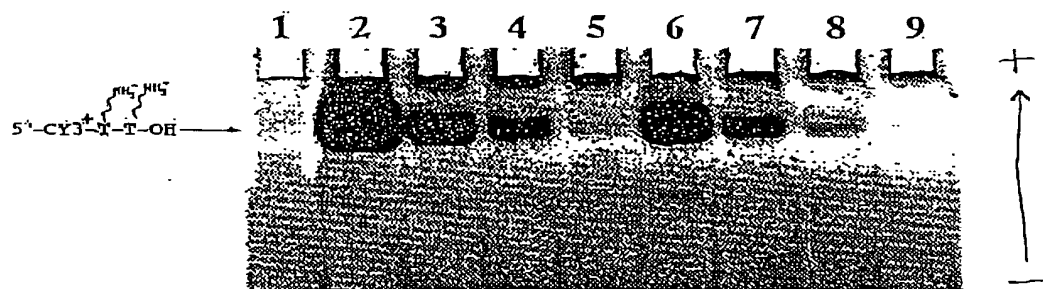




FIGURE 52

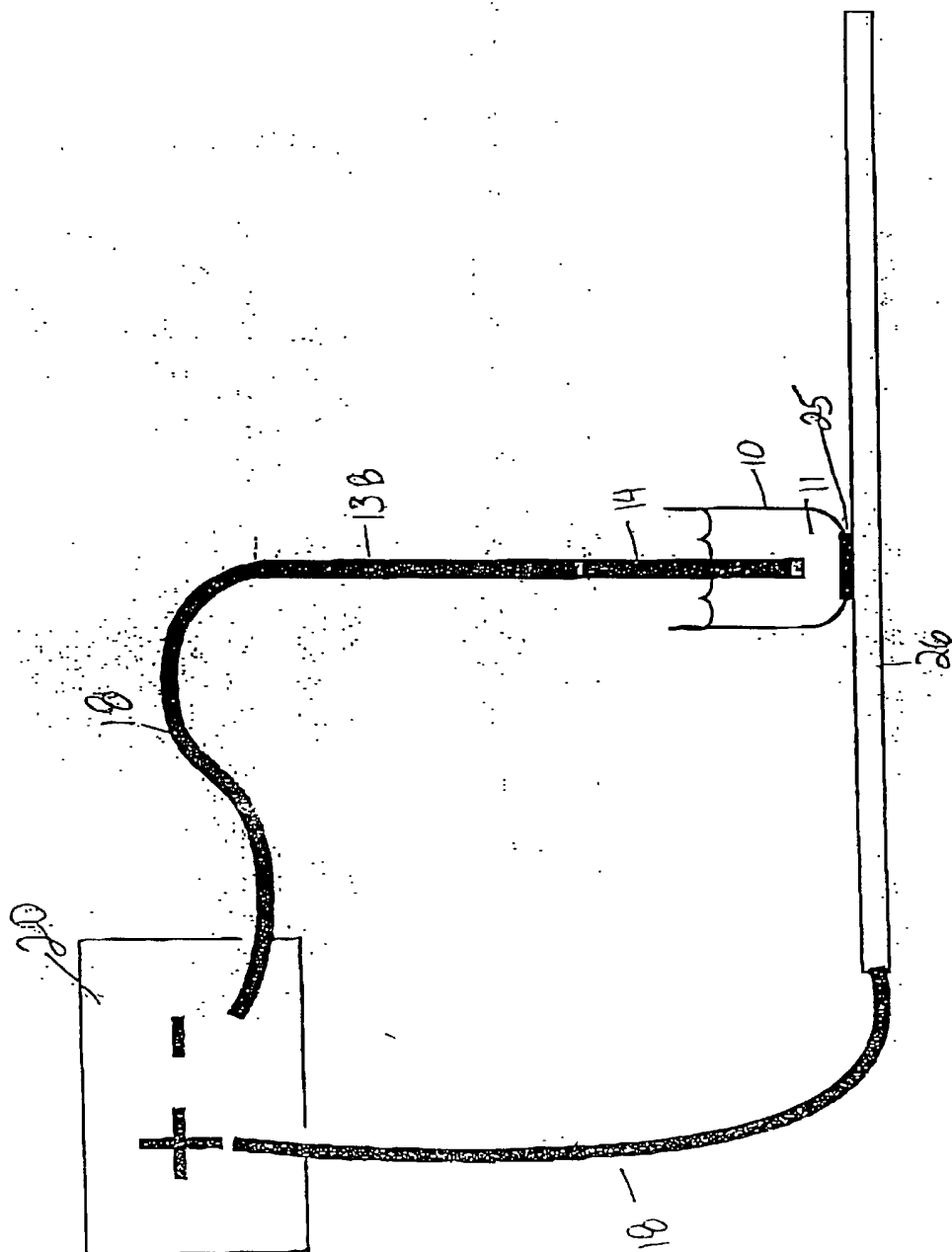
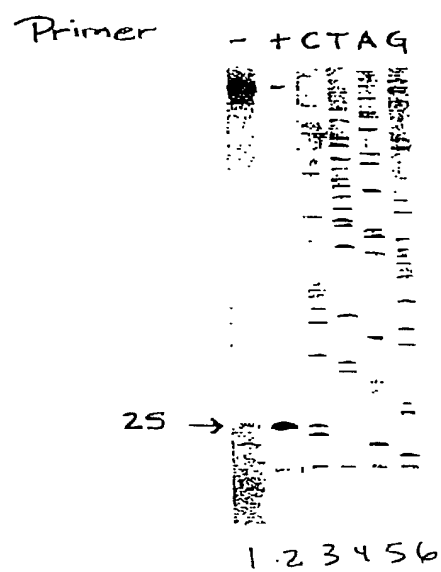




FIGURE 53



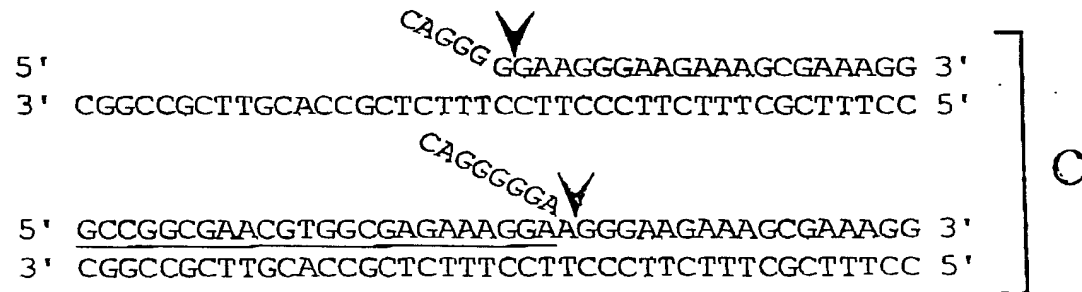
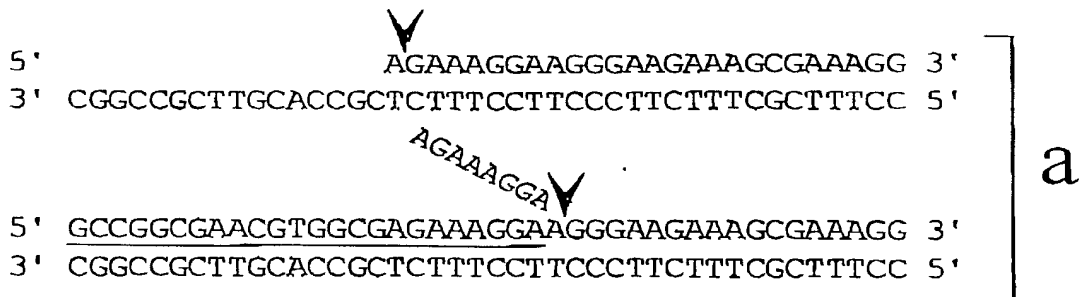
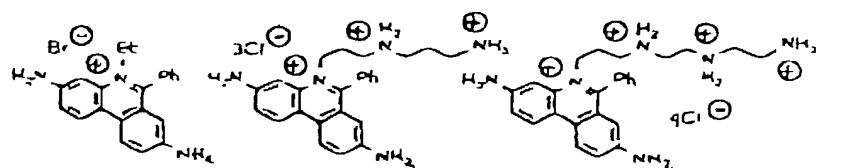
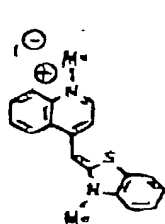


FIGURE 54

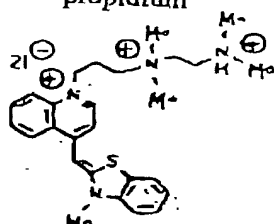
FIGURE 55



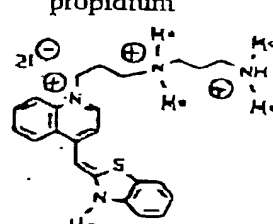
Ethidium Bromide (1,3-propanediamino)-propidium (diethylenetriamino)-propidium



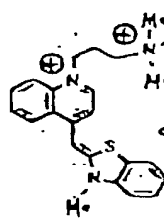
Thiazole Orange



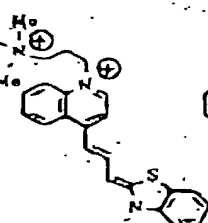
(N,N'-tetramethyl-1,2-ethanediamino)-propyl thiazole orange



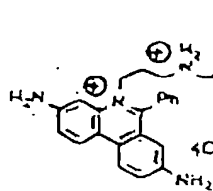
(N,N'-tetramethyl-1,3-propanediamino)-propyl thiazole orange



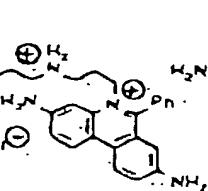
TOTAB



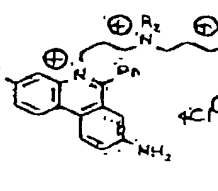
TOTO



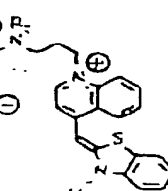
Et10



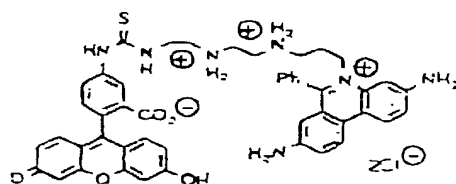
TOED1



TOED2



(R = H)  
(R = CH<sub>3</sub>)



FED

FIGURE 36

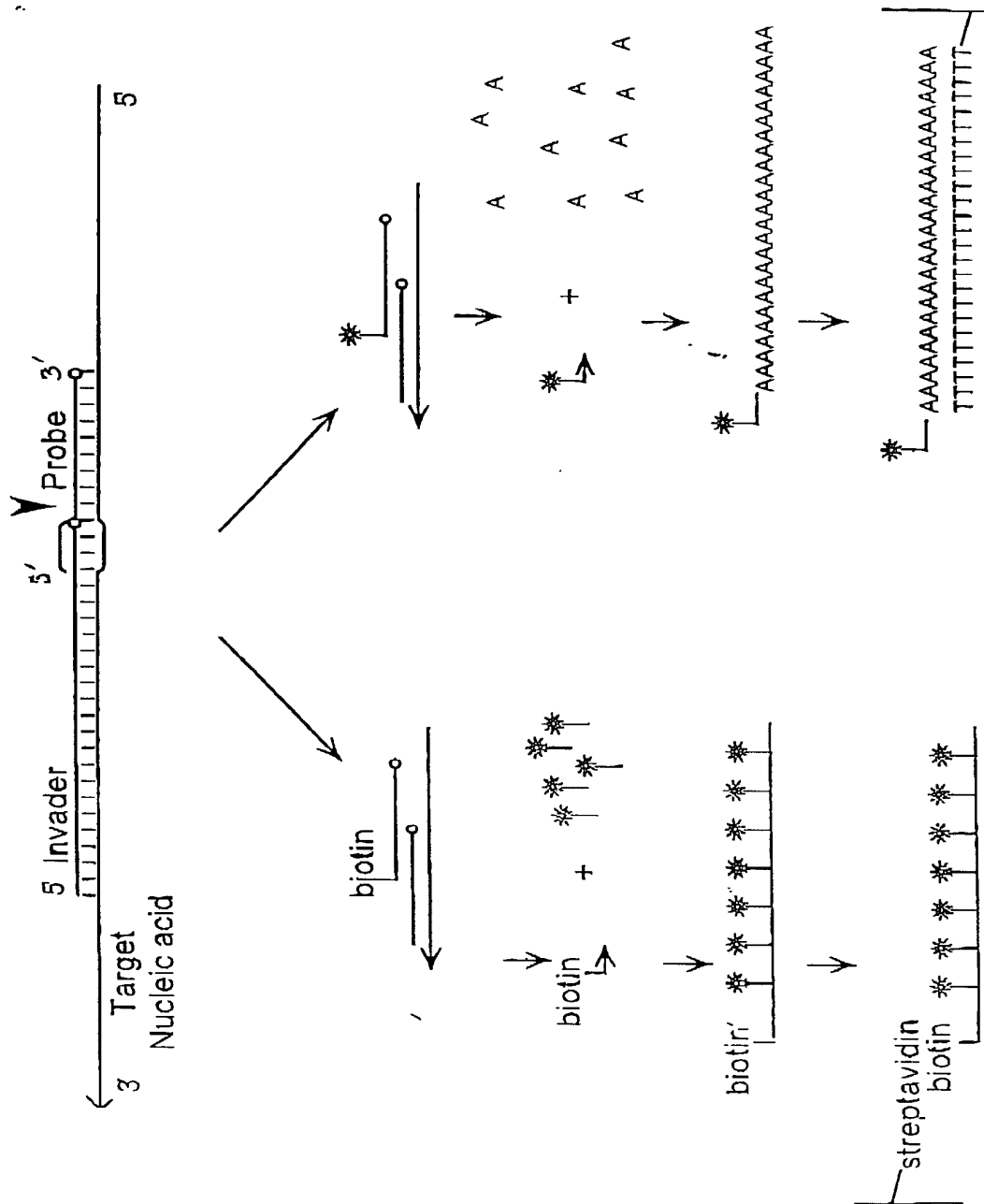
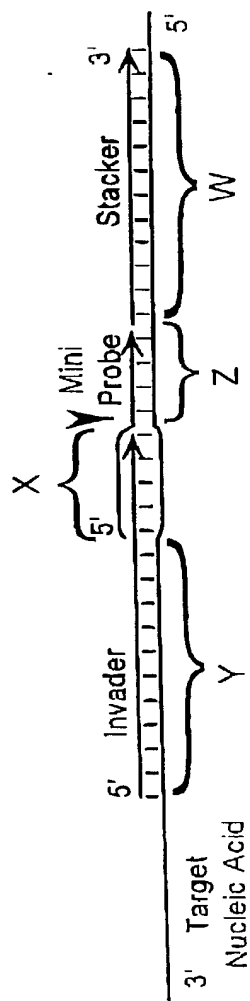


FIGURE 57



**FIGURE 58**



$$\frac{d}{dt} \left( \frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}, \quad \frac{d}{dt} \left( \frac{\partial L}{\partial \dot{y}} \right) = \frac{\partial L}{\partial y}, \quad \frac{d}{dt} \left( \frac{\partial L}{\partial \dot{z}} \right) = \frac{\partial L}{\partial z}$$
[illegible]

FIGURE 59B

	150	160	170	180	190	200	210
29	WVHCK	LLSLMGIPYVEAPSEGEAOASYMAKKGDVWAVVSODYDALLYGAPRVVRNL	TTTKEM	----			MJAFEN1.PRO
30	WVEDAKYLLLELMGIPYVOAPSEGEAOAAAYMAKGSVYASASQDYDSLLFGAPRLVRNL	ITGKRKLPGK					PFUFEN1.PRO
31	WVHDECKHLLSLMGIPYLDAPSEAEASCAALVKAGKVYAAATEDMDCLTFGSPVLMRHL	TASEAKKLPIO					HUMFEN1.PRO
32	WVHDECKHLLSLMGIPYLDAPSEAEASCAALVKAGKVYAAATEDMDCLTFGSPVLMRHL	TASEAKKLPIO					MUSFEN1.PRO
33	WVEEAKOLLGLMGIPYIAPTAEAOCAELAKKGVYAAASEMDTLCYRTPFLLRHL	TFSEAKKEPIH					YST510.PRO
34	WVKEVOELLSRFGIPYITAPMEAEAOCAELQLNLVDGII	TTDSDVFLFGGKI	YKNMFHEKNY	----			YSTRAD2.PRO
35	WVKECOELLRLFGIPYIVAPOEAEAOCSKLELKLVDGIV	TTDSDVFLFGGTRVYRNMFNQNK	----				SPORAD13.PRO
36	WVLESCELLRLFGIPYIOAPMEAEAOCAILDLT	TDOTSGTITDSDI	WLFGARHVYRNFNKNKF	----			HUMXPG.PRO
37	WVLESCELLRLFGIPYIOAPMEAEAOCAVLDSL	DOTSGTITDSDI	WLFGARHVYKFNKNKF	----			MUSXPG.PRO
38	WVLESCELLRLFGIPYIVAPMEAEAOCAILDLT	DOTSGTITDSDI	WLFGARHVYKNFFSONKH	----			XENXPG.PRO
39	WVYKTNALLTELGIKVI	IAPGDGEAOCAIEOLGVTSGC	ITTOFDYFLGGKNLYRFD	TAGT	-----		CELRAD2.PRO

	220	230	240	250	260	270	280
29	WVHCK	LLSLMGIPYVEAPSEGEAOASYMAKKGDVWAVVSODYDALLYGAPRVVRNL	TTTKEM	----			MJAFEN1.PRO
30	WVEDAKYLLLELMGIPYVOAPSEGEAOAAAYMAKGSVYASASQDYDSLLFGAPRLVRNL	ITGKRKLPGK					PFUFEN1.PRO
31	WVHDECKHLLSLMGIPYLDAPSEAEASCAALVKAGKVYAAATEDMDCLTFGSPVLMRHL	TASEAKKLPIO					HUMFEN1.PRO
32	WVHDECKHLLSLMGIPYLDAPSEAEASCAALVKAGKVYAAATEDMDCLTFGSPVLMRHL	TASEAKKLPIO					MUSFEN1.PRO
33	WVEEAKOLLGLMGIPYIAPTAEAOCAELAKKGVYAAASEMDTLCYRTPFLLRHL	TFSEAKKEPIH					YST510.PRO
34	WVKEVOELLSRFGIPYITAPMEAEAOCAELQLNLVDGII	TTDSDVFLFGGKI	YKNMFHEKNY	----			YSTRAD2.PRO
35	WVKECOELLRLFGIPYIVAPOEAEAOCSKLELKLVDGIV	TTDSDVFLFGGTRVYRNMFNQNK	----				SPORAD13.PRO
36	WVLESCELLRLFGIPYIOAPMEAEAOCAILDLT	TDOTSGTITDSDI	WLFGARHVYRNFNKNKF	----			HUMXPG.PRO
37	WVLESCELLRLFGIPYIOAPMEAEAOCAVLDSL	DOTSGTITDSDI	WLFGARHVYKFNKNKF	----			MUSXPG.PRO
38	WVLESCELLRLFGIPYIVAPMEAEAOCAILDLT	DOTSGTITDSDI	WLFGARHVYKNFFSONKH	----			XENXPG.PRO
39	WVYKTNALLTELGIKVI	IAPGDGEAOCAIEOLGVTSGC	ITTOFDYFLGGKNLYRFD	TAGT	-----		CELRAD2.PRO



FIGURE 59C

	290	300	310	320	330	340	350
1	REVEYDEIKRIFKEPV	----	----	TD--	NYSLSKL	PDKEGI	IKFLVDENDFN
2	SDVDLYAIKEFFLNPPV	----	----	TO--	NYNLV	WROPDEEG	ILKFLCDEHOFSEE
3	PENWLHKEAHOLFLEPEV	----	----	LOPES	VELKWSEPN	EEELIK	KFMCGEKOFSEE
4	PENWLHKEAOLLEPEV	----	----	VOPES	VELKWSEPN	EEELVK	FMCGEKOFSEE
5	PEDWPKOARMFLFOPEV	----	----	JDGNE	INLKWSP	KEKEL	IEYLCDDKKFSEE
6	ETENKFEKOLRKKLVNNE	ILDDDF	PSVMVYDAYMR	PEVDHDT	TPFVW	GVDPLO	MLRSFMKTOLGWPHE
7	ADVNTPVKKRINKLVGK	-IILP	SEFPNPLVOEAYL	HPAVDD	SKOSFOWGI	PDLOEL	RQFLMATVGSWKQ
8	RPNPHDTKVKKKL	--RT	LQTPGFPNPAVAEAYL	KPVVDD	SGSFLWGK	PDLOK	IREFCORYFGWNRT
9	LENPYDTKVKKKL	--RK	LQTPGFPNPAVADAYL	RPVVDD	SRGSFLWGK	PDVDK	IREFCORYFGWNRM
10	RPAPNDTKVKKKL	--RL	LOOSFPNPAVASAYL	KPVVDE	SKSAFSGWR	PDLEQ	IREFCESRFGWYRL
11	-----	EKKVSRPHL	ISTAIL	LGCDYFORGVON	IGIVSVF	-ILGEFG	DDGNEEIOPHVILDRFASYVRE

	360	370	380	390	400	410	420
12	PKKHVDKLYNLIA	----	----	----	----	----	MJAFEN1.PRO
13	KAGLERLKA	----	----	----	----	----	PFUFEN1.PRO
14	PSGVKRLSKSROGS	-TOGR	LDDFFKVT	----	----	----	HUMFEN1.PRO
15	PSGVKRLSKSROGS	-TOGR	LDDFFKVT	----	----	----	MUSFEN1.PRO
16	PSGISRLKKGLKSG	-IOGR	LDGFFOVV	----	----	----	YST510.PRO
17	DELPLPLRDVNRKK	----	----	----	----	----	YSTRAD2.PRO
18	DELPLPLRDVNRKKOF	----	----	----	----	----	SPORAD13.PRO
19	DESFPYLKOLDAO0TOL	RIOS	FFRLAOEKEADAKRI	KSORL	NRAVTCMLR	KEKEAA	SEIEAVSVAM
20	DESFPYLKHLNAH0TOL	RIDS	FFRLAOEKEODAKLI	KSHRL	SRAVTCMLR	KEKEAPEL	TKVTEAM
21	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
22	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
23	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
24	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
25	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
26	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
27	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
28	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
29	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
30	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
31	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
32	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
33	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
34	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
35	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
36	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
37	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
38	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
39	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
40	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
41	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
42	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
43	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
44	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
45	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
46	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
47	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
48	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
49	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
50	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
51	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
52	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
53	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
54	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
55	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
56	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
57	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
58	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
59	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
60	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
61	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
62	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
63	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
64	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
65	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
66	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
67	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
68	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
69	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
70	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
71	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
72	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
73	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
74	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
75	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
76	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
77	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
78	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
79	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
80	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
81	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
82	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
83	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
84	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
85	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
86	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
87	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
88	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
89	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
90	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
91	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
92	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
93	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
94	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
95	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
96	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
97	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
98	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
99	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM
100	DESFPYLKOLNAO0TOL	RIDS	FFRLAOEKEAAG--	--LK	SORLRAVTCMKR	KEERDVEA	EEVEAAVAM

\_\_\_\_\_

$$\begin{aligned} & \left(1 - \frac{1}{2} \frac{1}{\Gamma(1-\alpha)} \frac{d}{dt} \right)^2 \left(1 - \frac{1}{2} \frac{1}{\Gamma(1-\alpha)} \frac{d}{dt} \right)^2 \left(1 - \frac{1}{2} \frac{1}{\Gamma(1-\alpha)} \frac{d}{dt} \right)^2 \left(1 - \frac{1}{2} \frac{1}{\Gamma(1-\alpha)} \frac{d}{dt} \right)^2 \\ & \left(1 - \frac{1}{2} \frac{1}{\Gamma(1-\alpha)} \frac{d}{dt} \right)^2 \left(1 - \frac{1}{2} \frac{1}{\Gamma(1-\alpha)} \frac{d}{dt} \right)^2 \left(1 - \frac{1}{2} \frac{1}{\Gamma(1-\alpha)} \frac{d}{dt} \right)^2 \left(1 - \frac{1}{2} \frac{1}{\Gamma(1-\alpha)} \frac{d}{dt} \right)^2 \end{aligned}$$
[illegible]



7E

S - 33

5' T G G T C G C T G T C T C G C T G A  
3' G T G C G A C A G A G C G A A

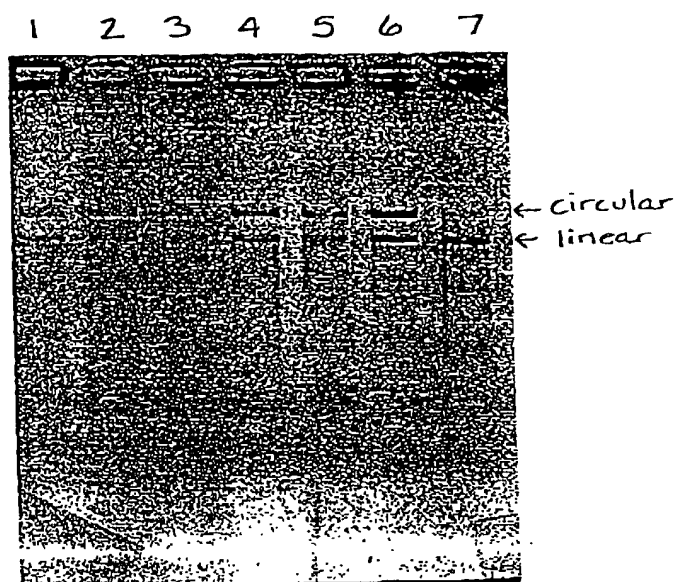
11-8-0

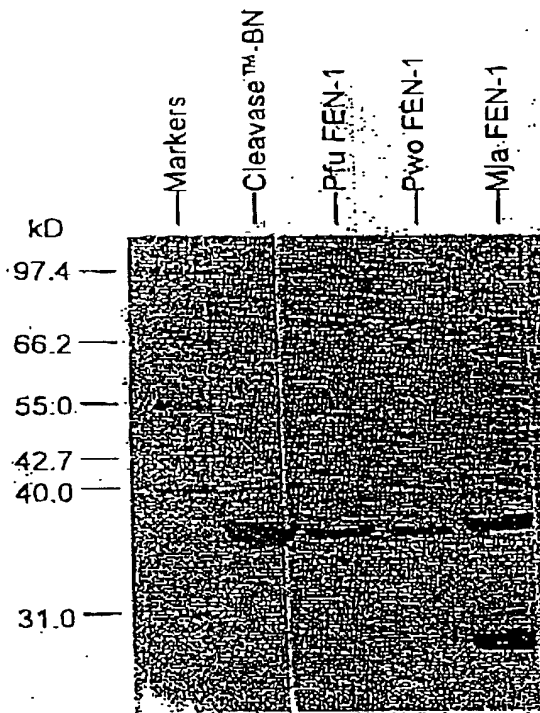
5' T G C T C T C T G G T C G C T G T C T G A  
11-8-0  
cleavage  
site  
Y  
G C G A C A G A A A  
3'





FIGURE 63

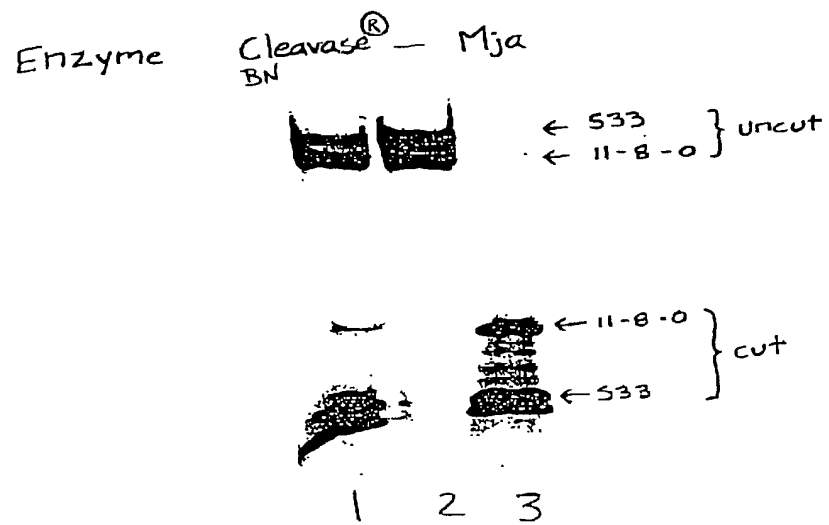




**FIGURE 64**

80





**FIGURE 65**

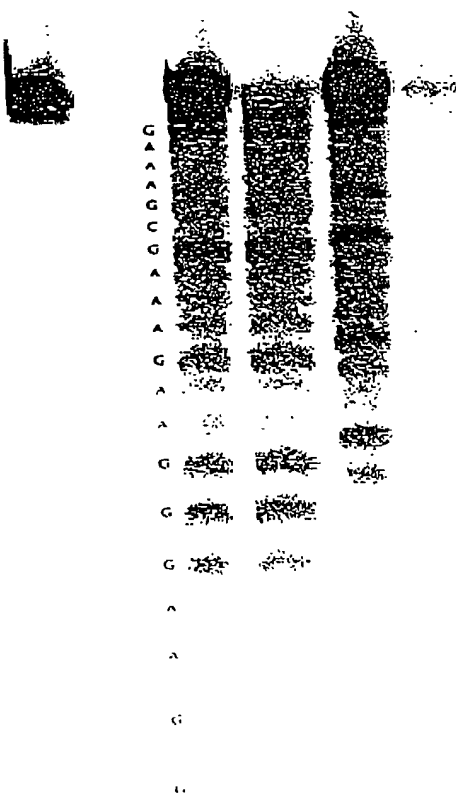
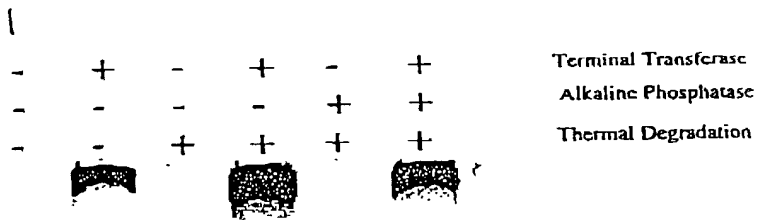
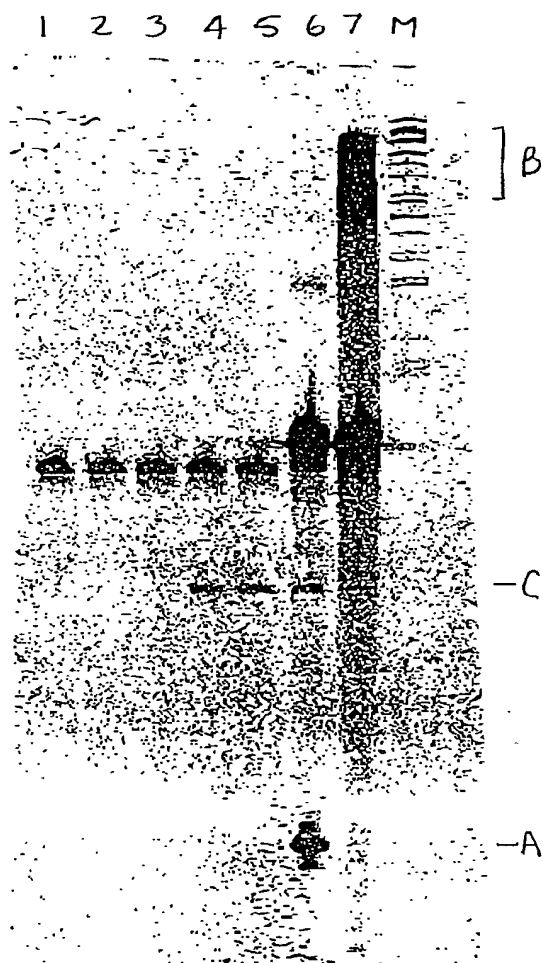


FIGURE 66

5'-nAGAAAggaaggga agaaagcgaaagG-3'



**FIGURE 67**

**FIGURE 68**

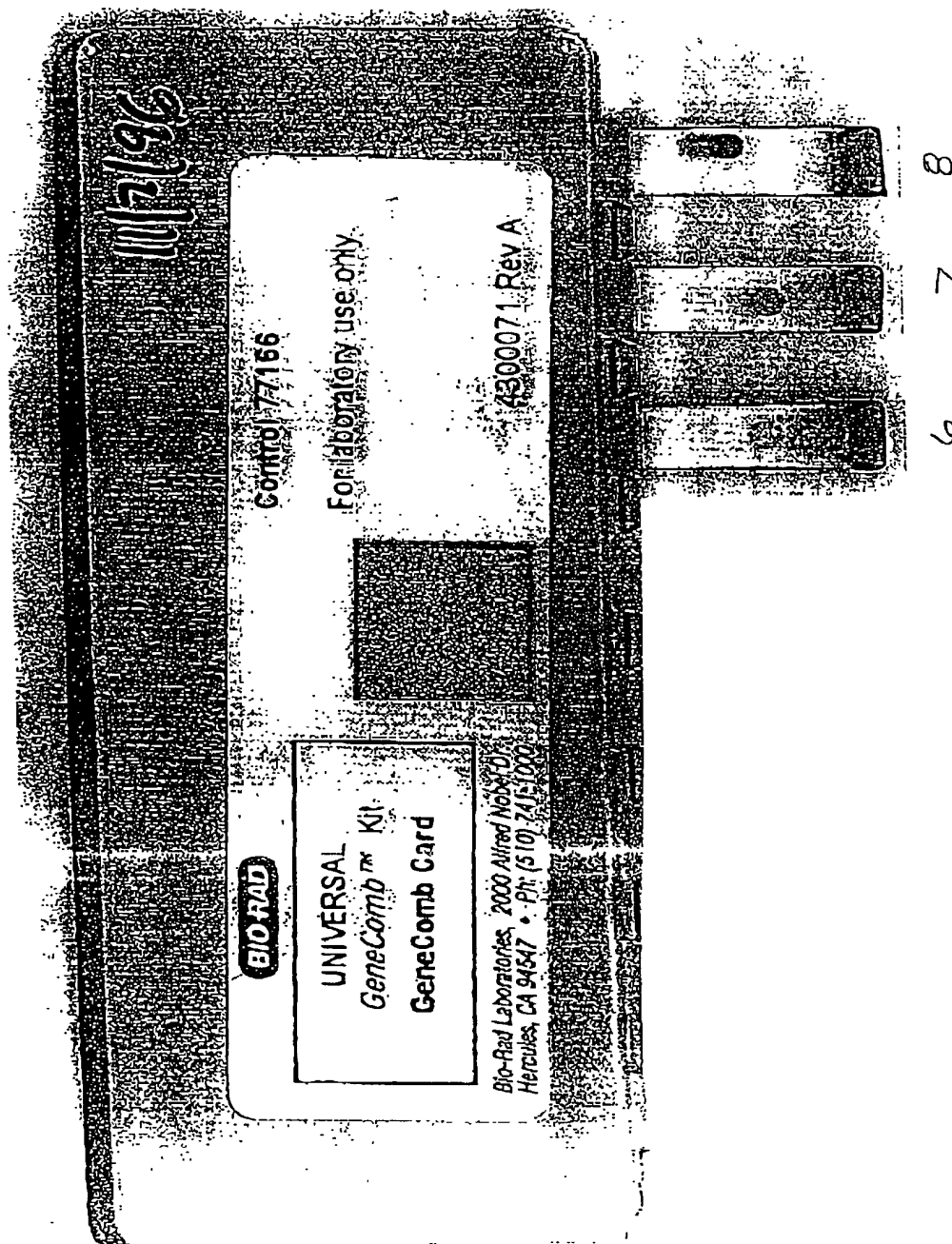
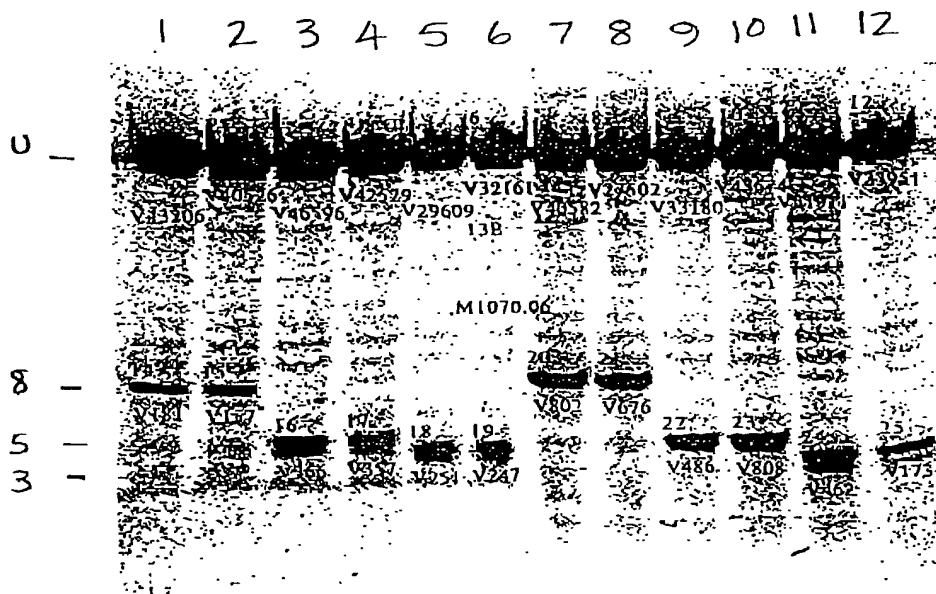


FIGURE 69



85

FIGURE 70

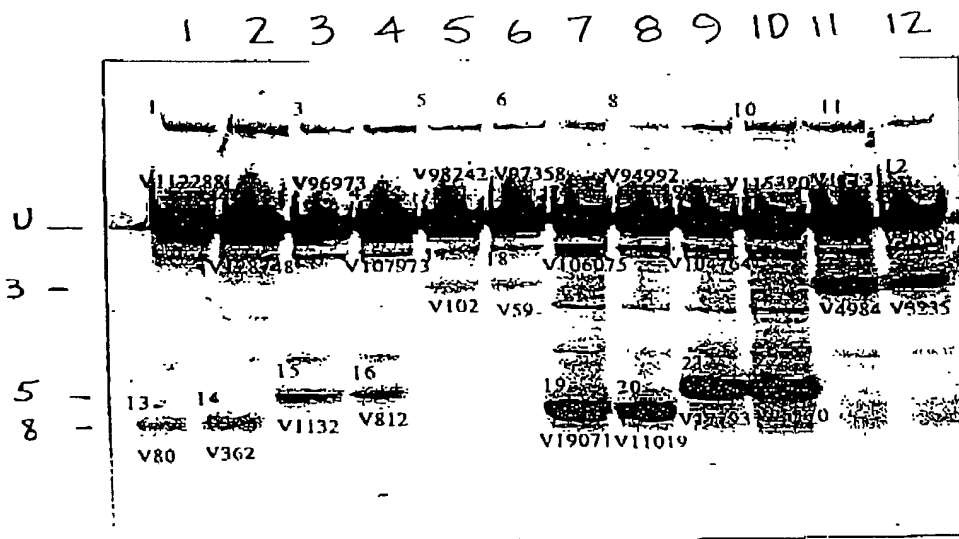
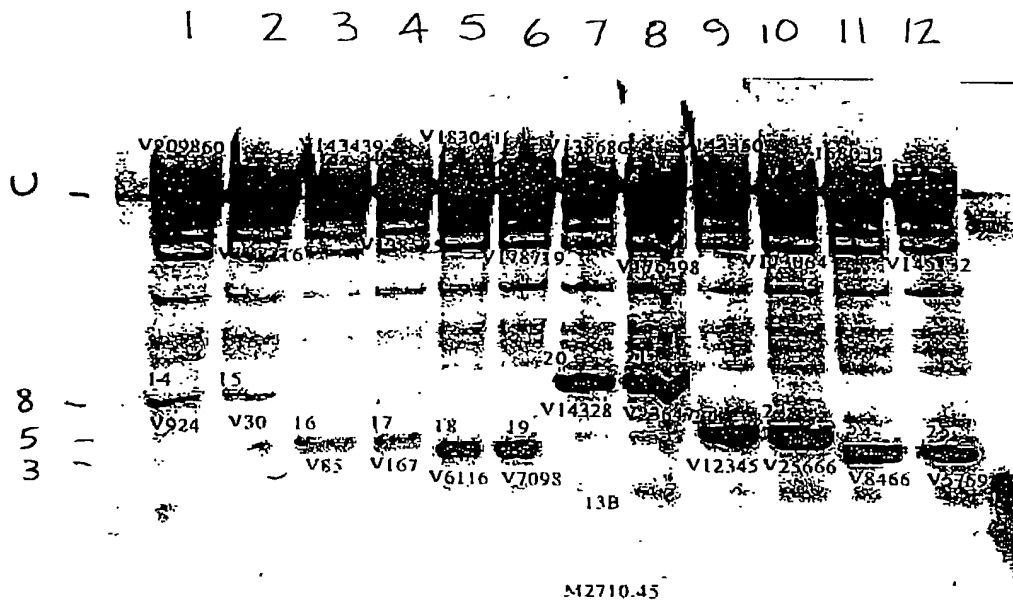


FIGURE 71



A

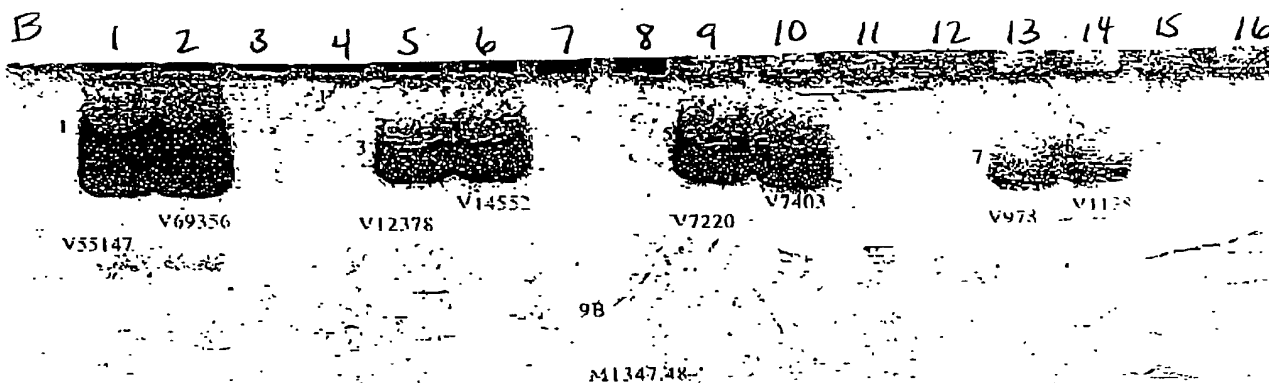
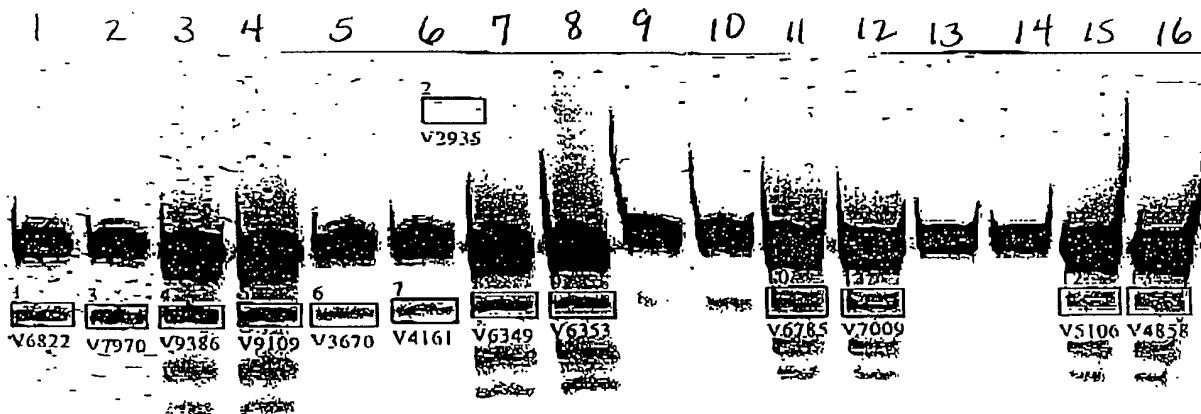
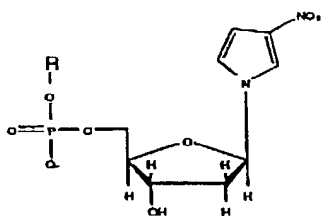


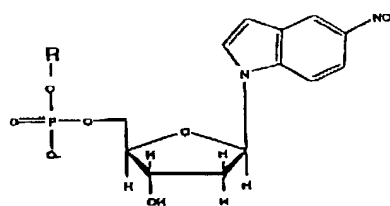
FIGURE 72



FIGURE 73



3-nitropyrrole



5-nitroindole

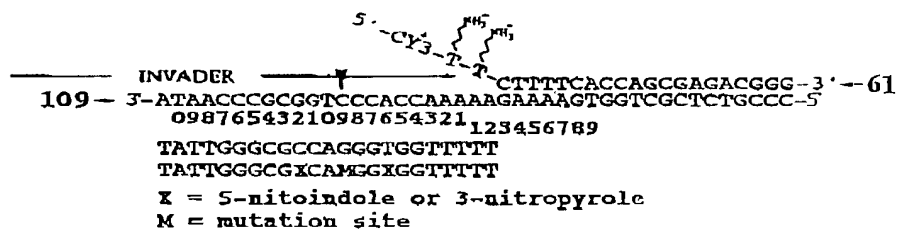
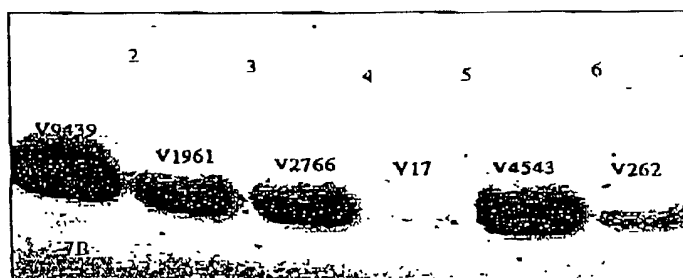


FIGURE 74

	Allcomp	1Base Mismatch	Allcomp	1Base Mismatch	Allcomp	1Base Mismatch
	2NI	2NI	1NP	1NP	1NP	1NP
Invent #	67	114	115	116	112	113

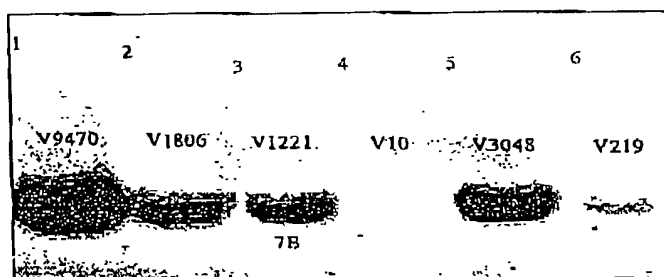
A

52°C



B

55°C



C

58°C

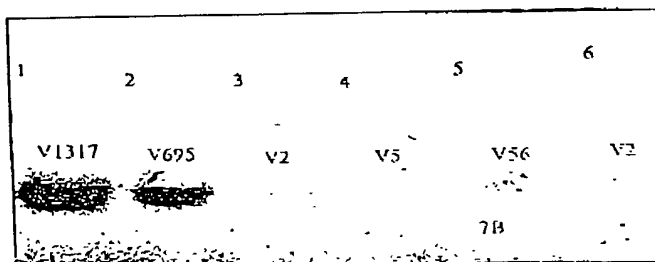
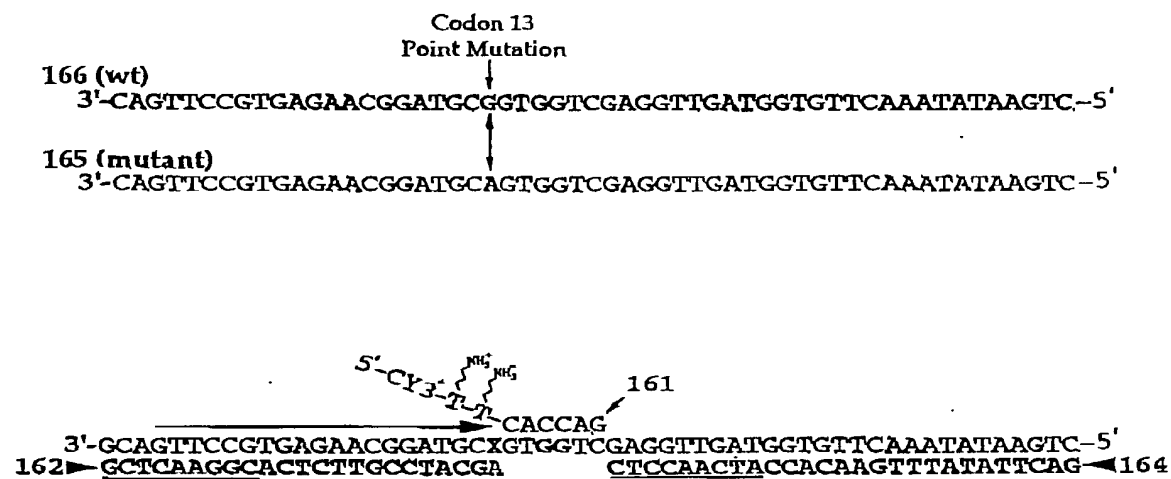


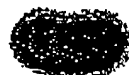
FIGURE 75

## FIGURE 76



**FIGURE 77**

Temp	→		47°		50°		53°		56°	
Target	→	—	165	166	165	166	165	166	165	166



**FIGURE 78**

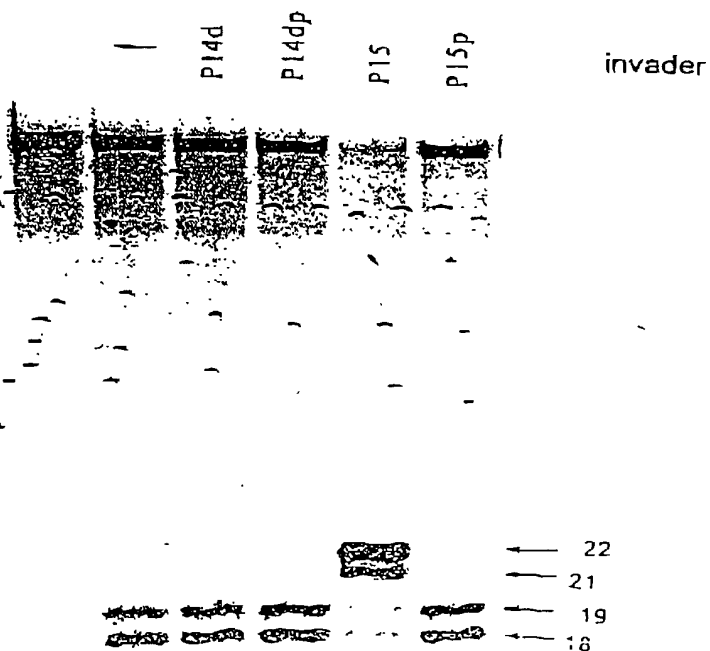
A

FI  
5' GTTCTCTGCTCTCTGGT  
18 19  
CGCTGTCTCGCTTGT G  
GCGACAGAGCGAACA A  
3' GCTCTCTGGT

B

FI  
5' GTTCTCTGCTCTCTGGT CGCT<sup>21 22</sup> GTCTCGCTTGT G  
3' GCTCTCTGGT GCGACAGAGCGAACA A  
5' CGAGAGACCAACGCT G  
P15

C



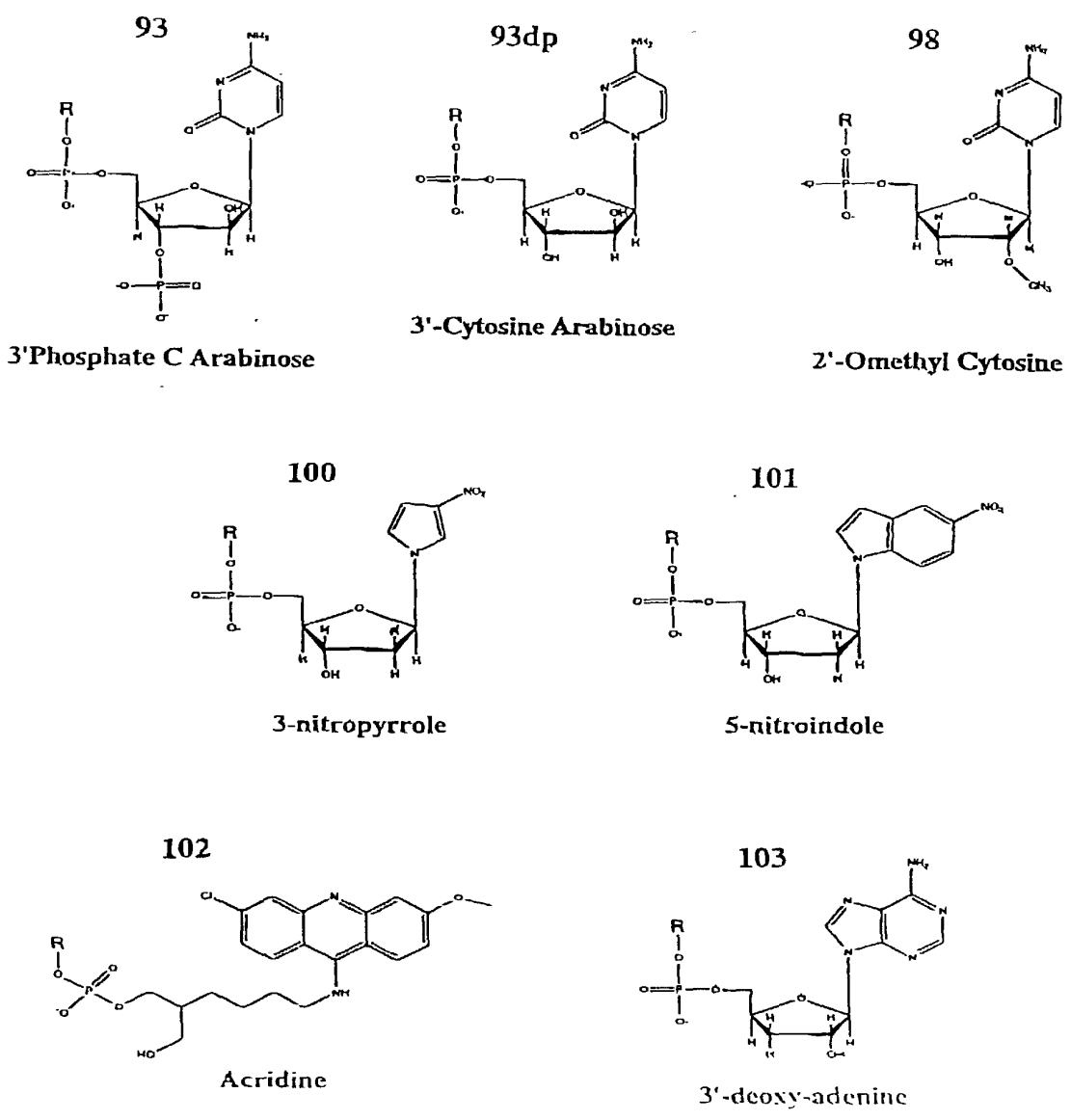


FIGURE 79

95

Concentration of Probe w/ and w/o Stacker vs Temp

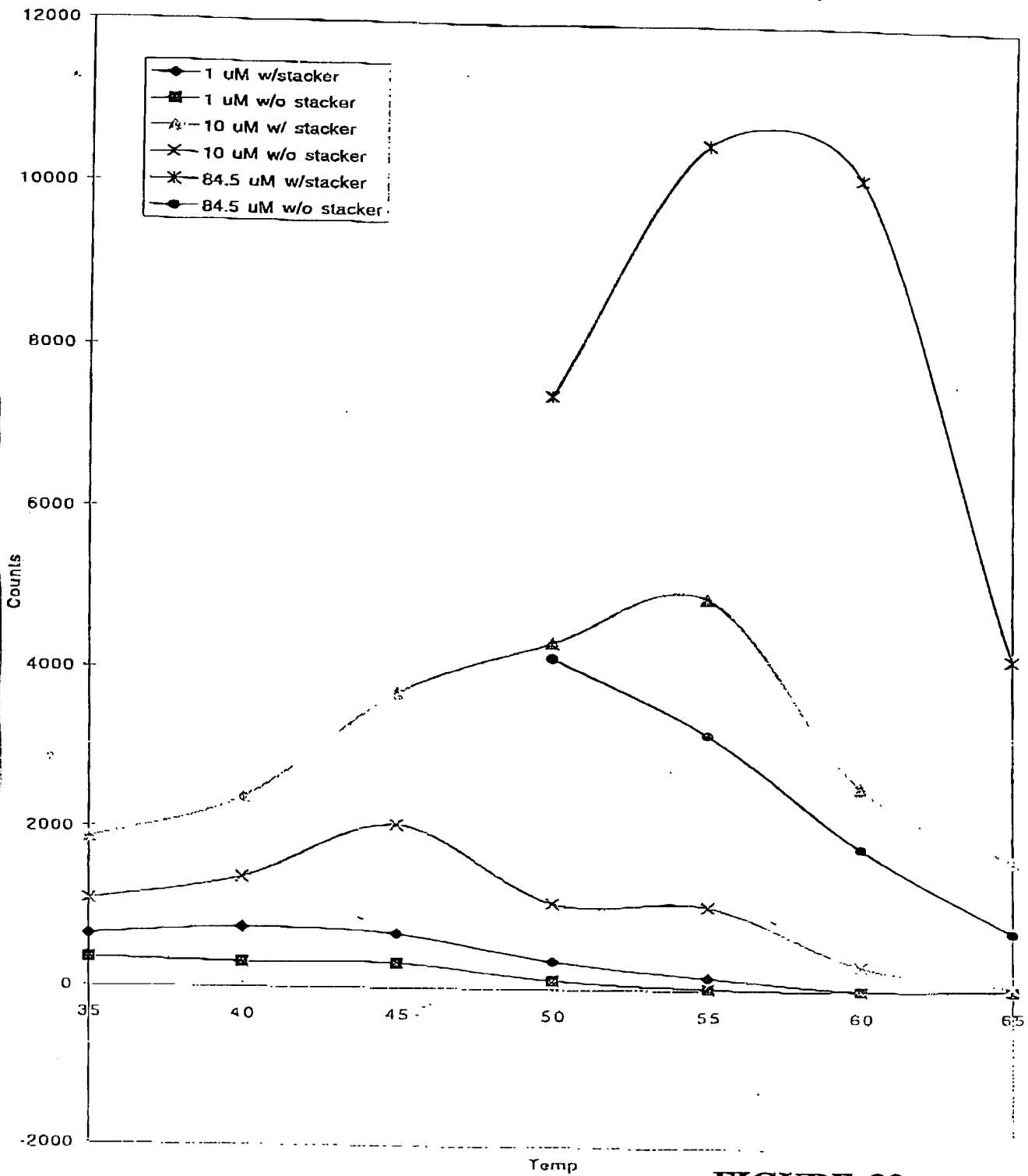
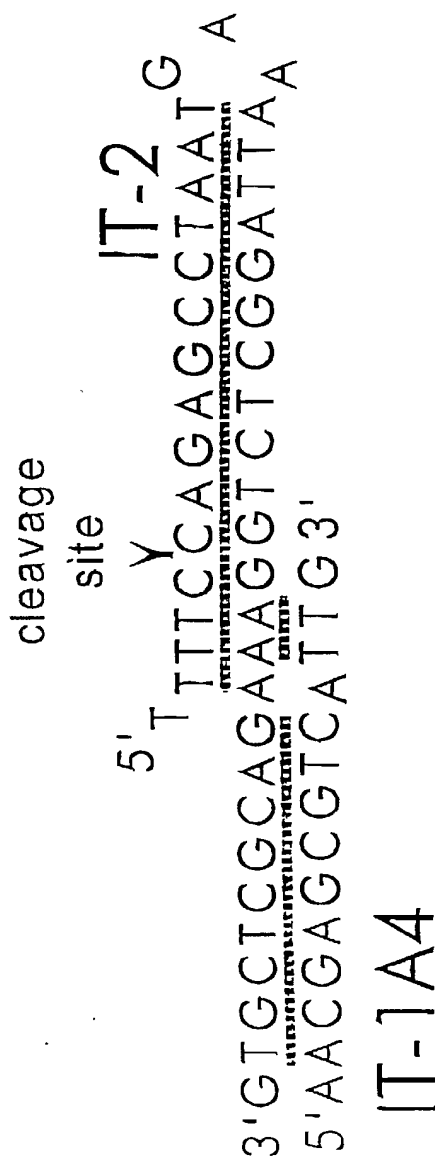
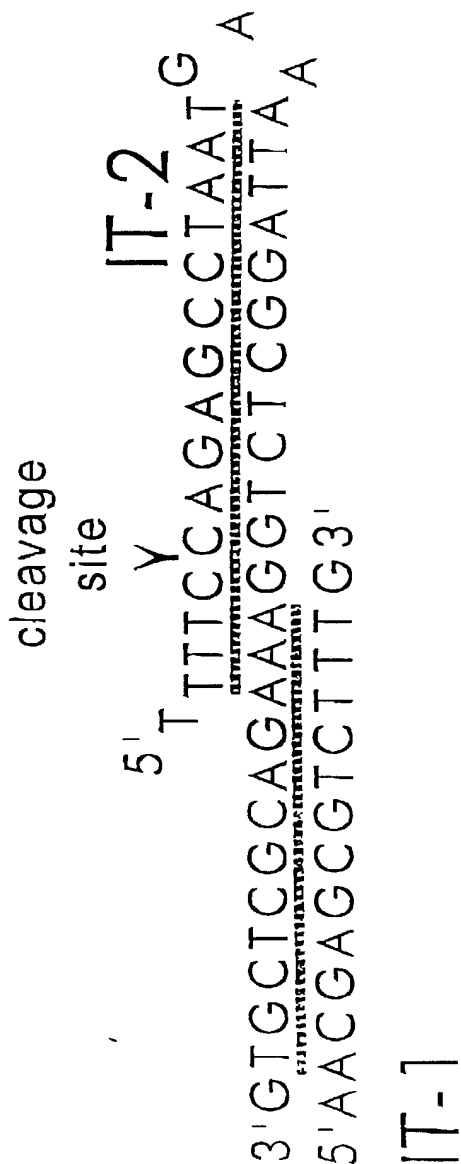


FIGURE 80



**FIGURE 81**



# FIGURE 82

1 2 3 4



-Uncut

FIGURE 83

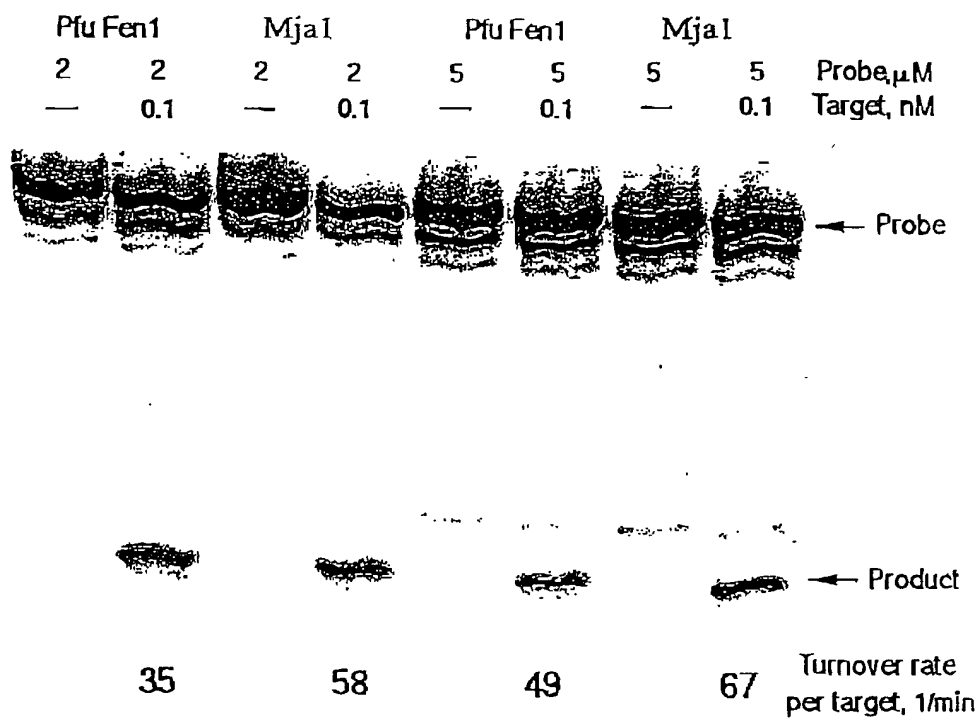


FIGURE 84

1 2 3 4 5

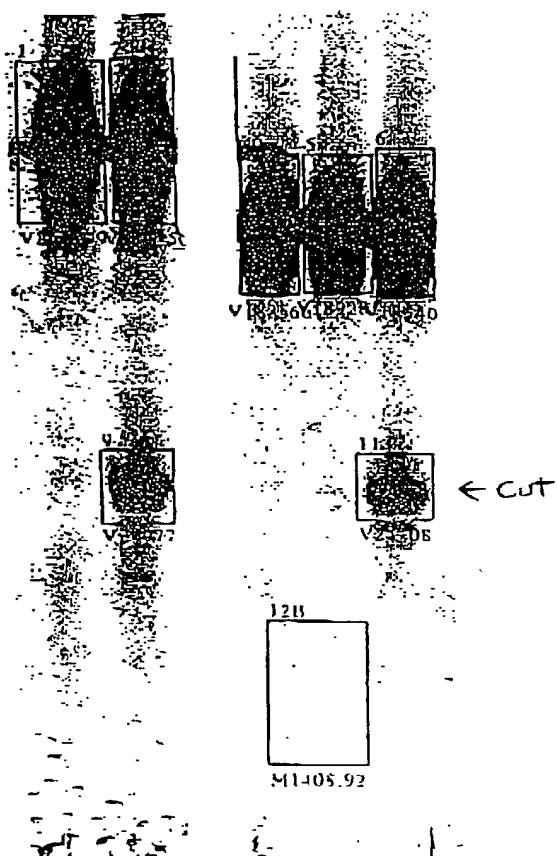
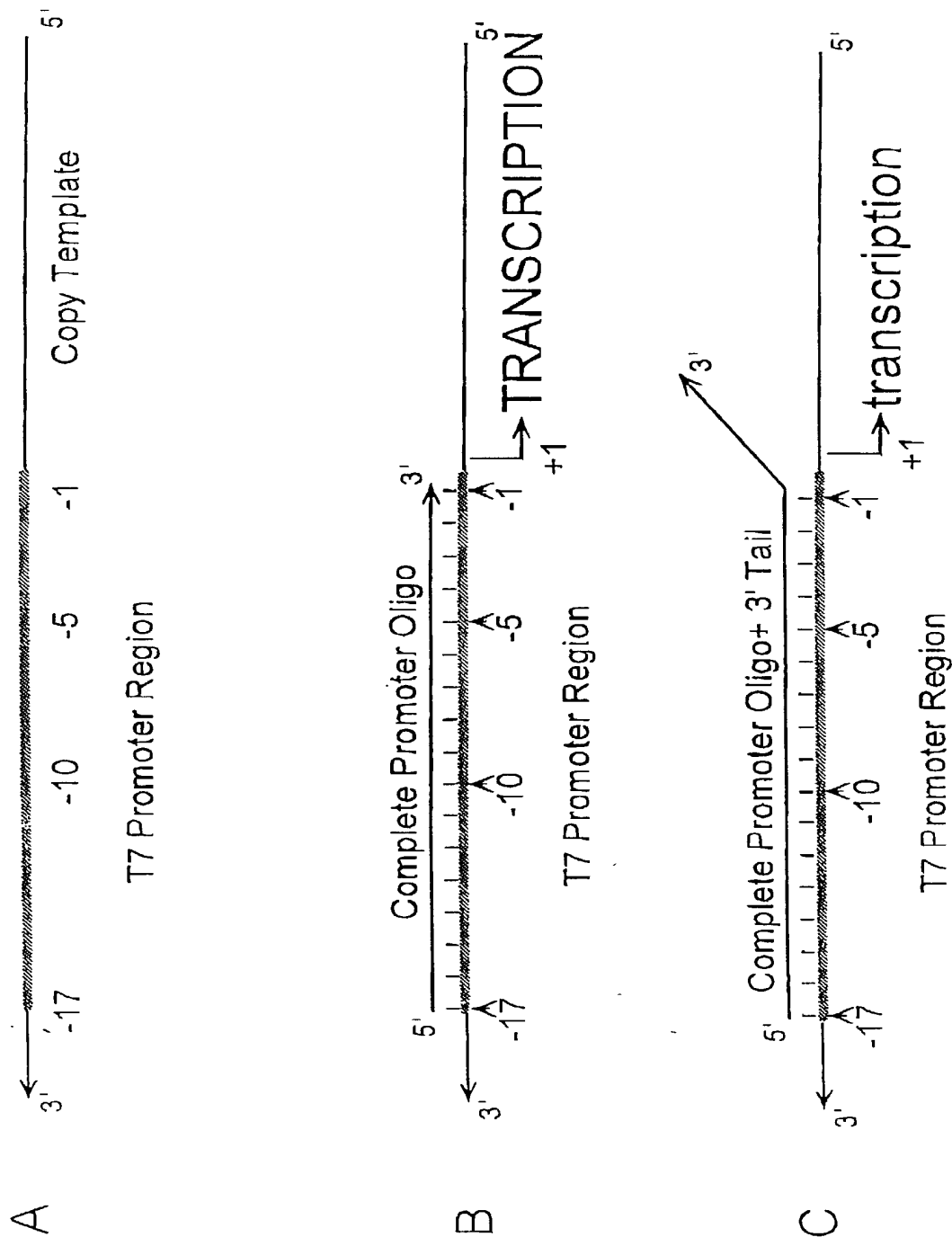


FIGURE 85



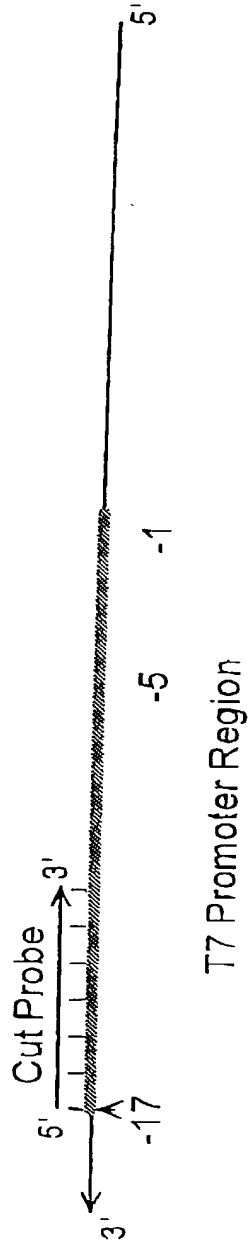


FIGURE 86A

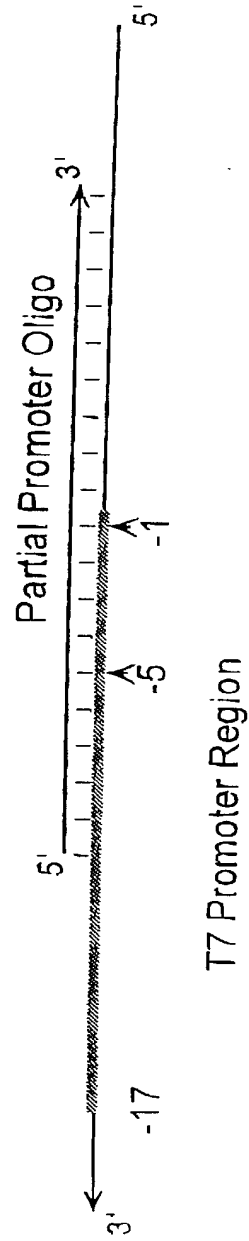


FIGURE 86B

FIGURE 86C

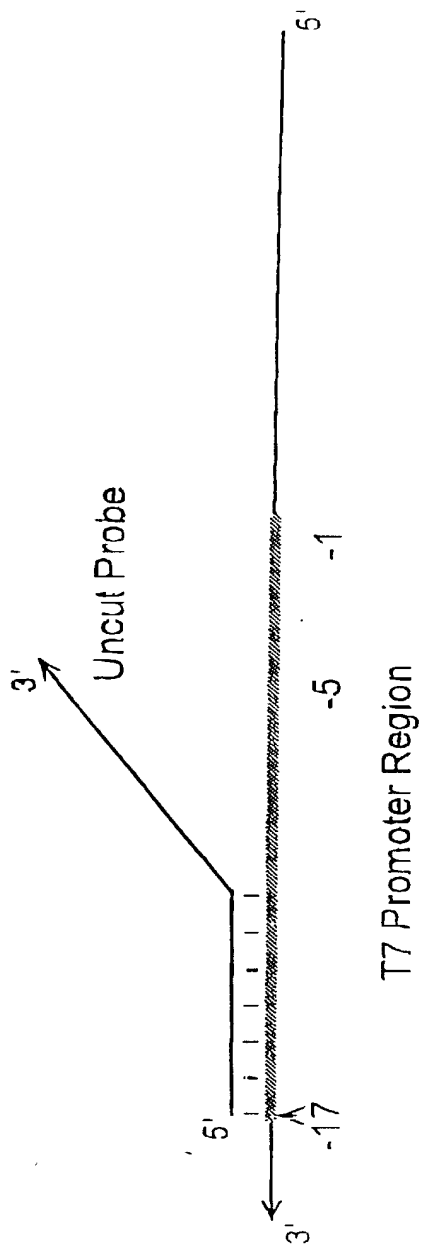


FIGURE 86D

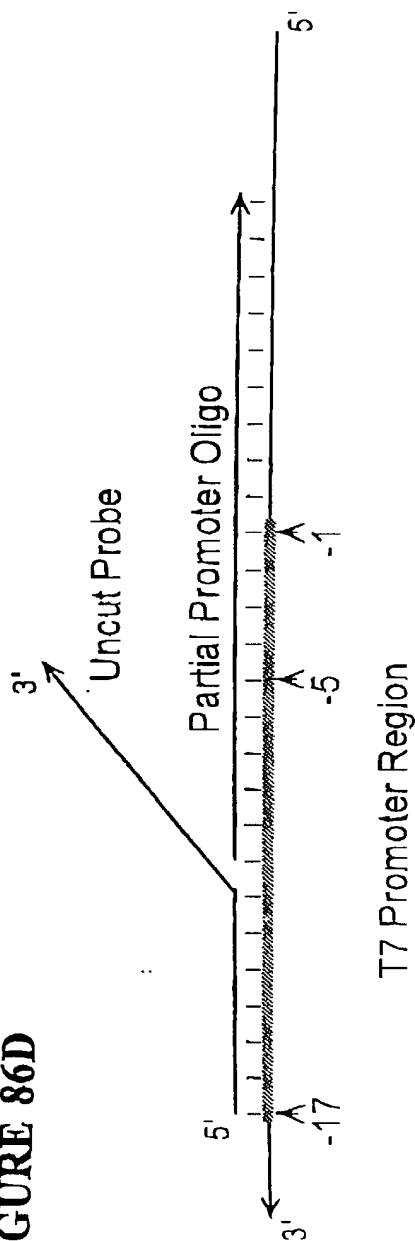


FIGURE 87

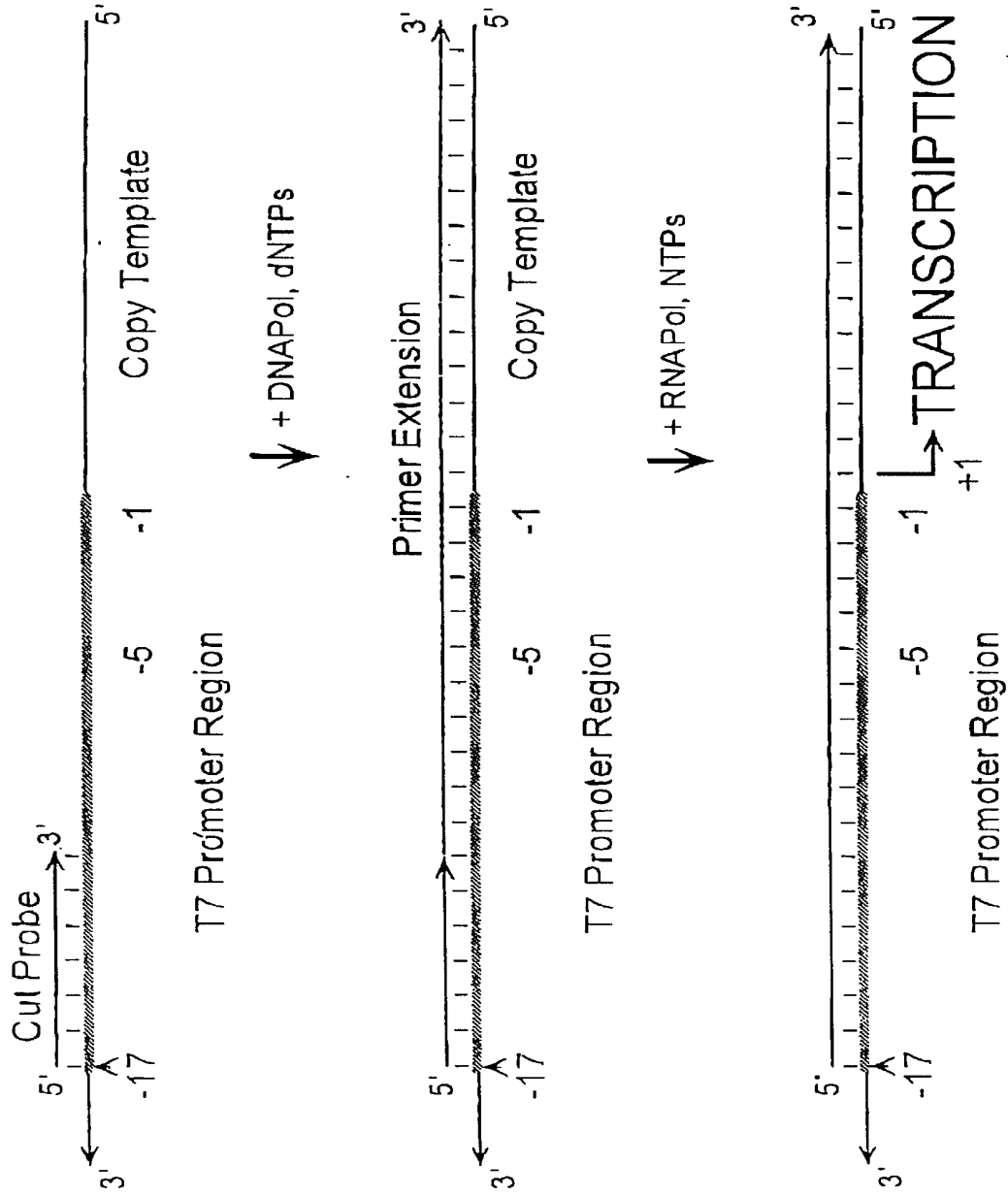




FIGURE 88A

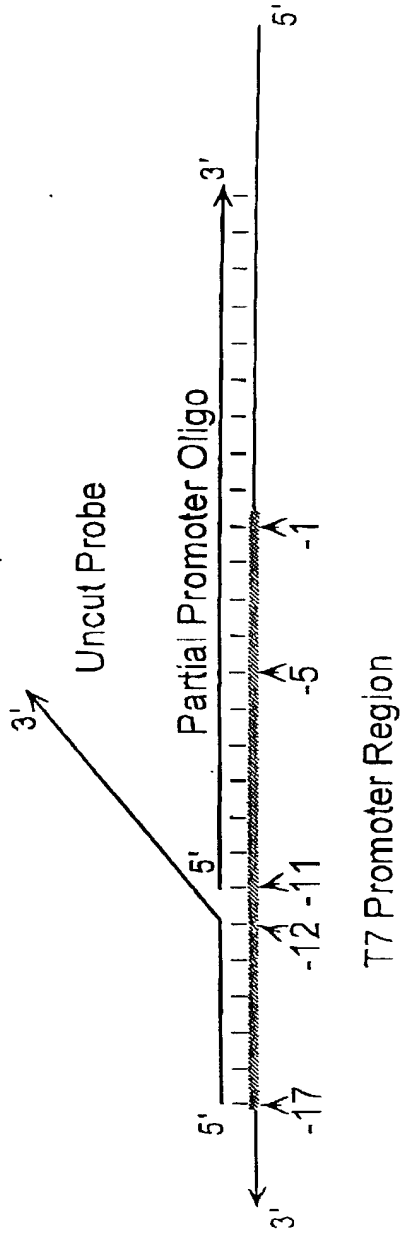
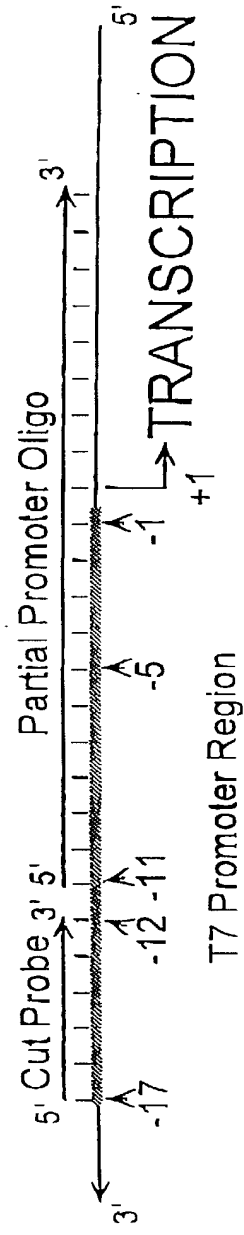


FIGURE 88B



105

FIGURE 89

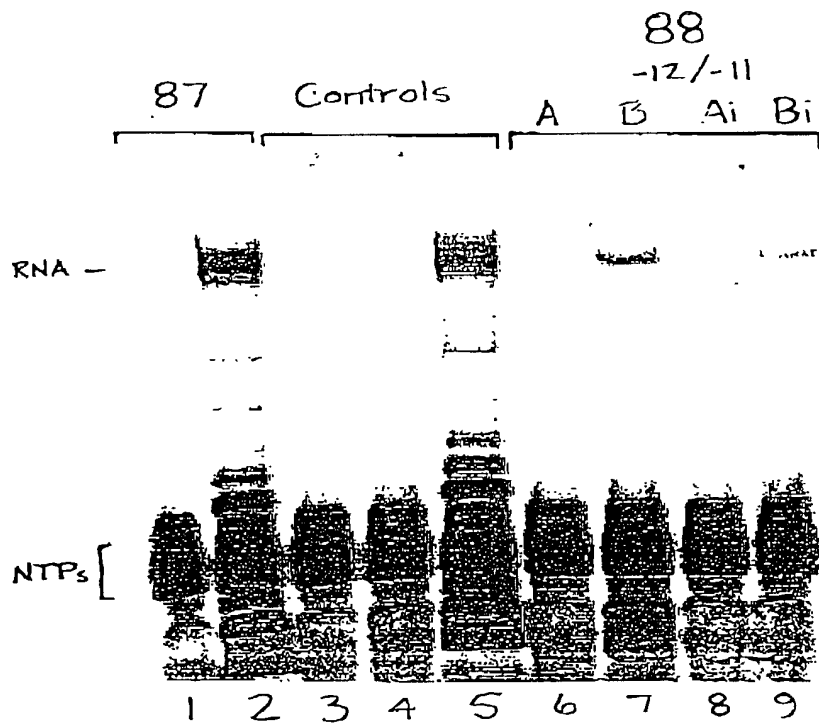
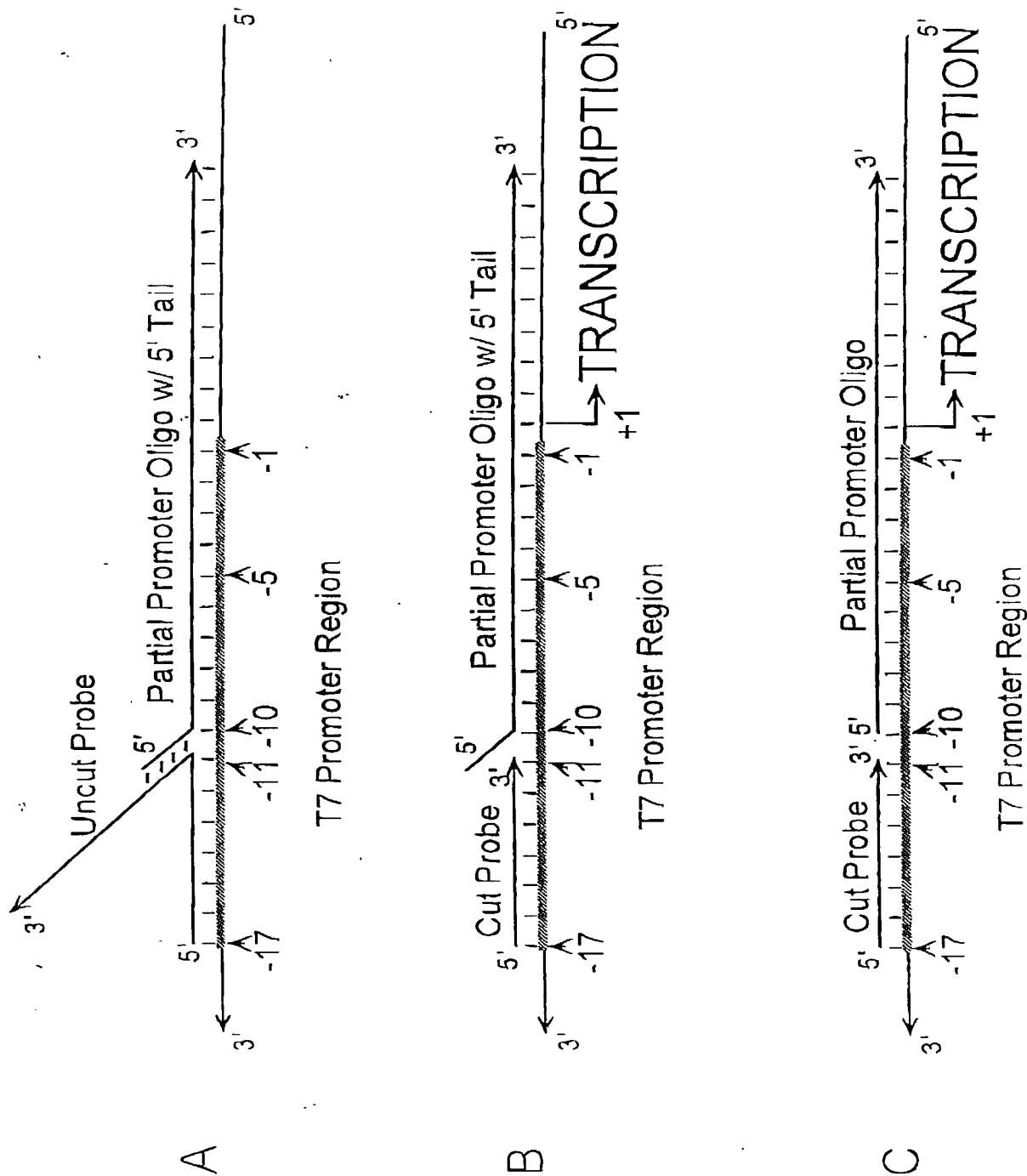


FIGURE 90



107

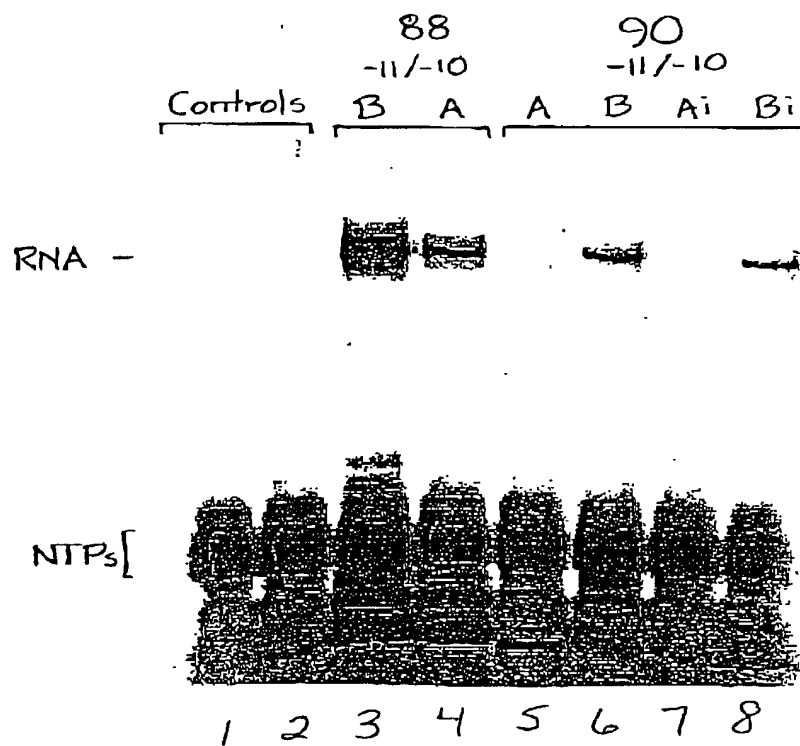
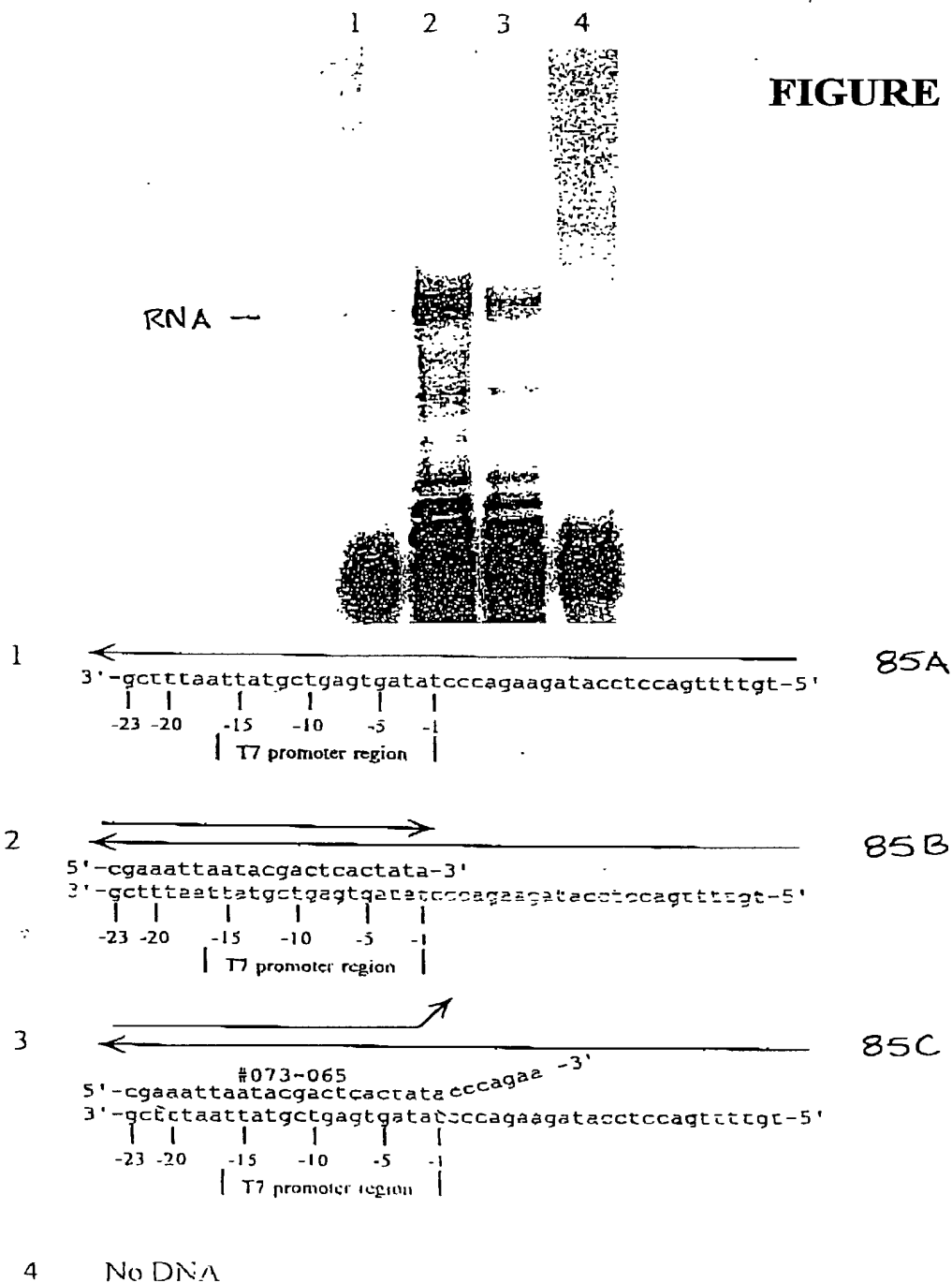


FIGURE 91

68



FIGURE 93



110

FIGURE 94

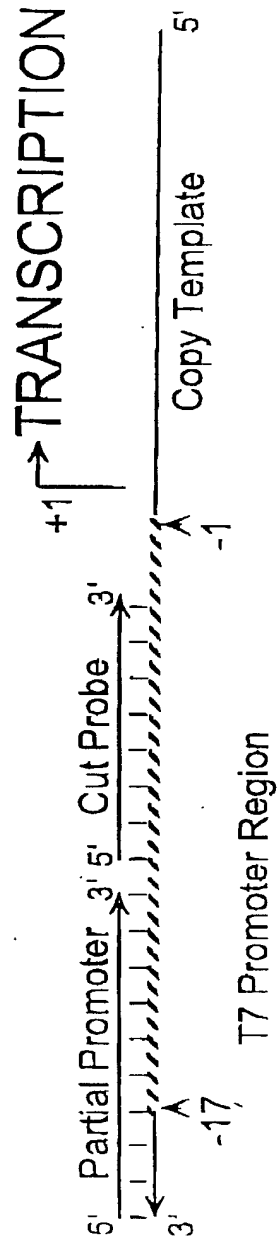


FIGURE 95A

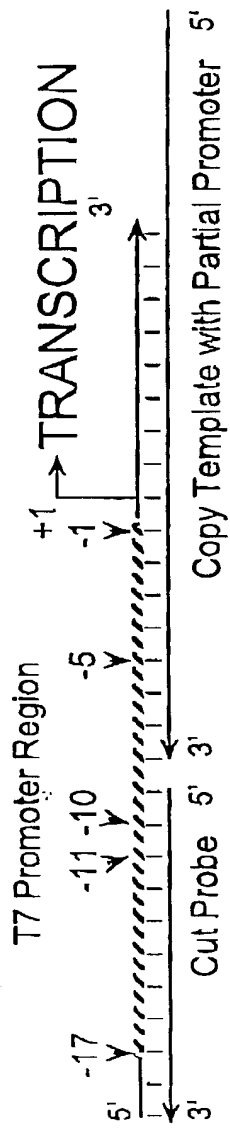


FIGURE 95B

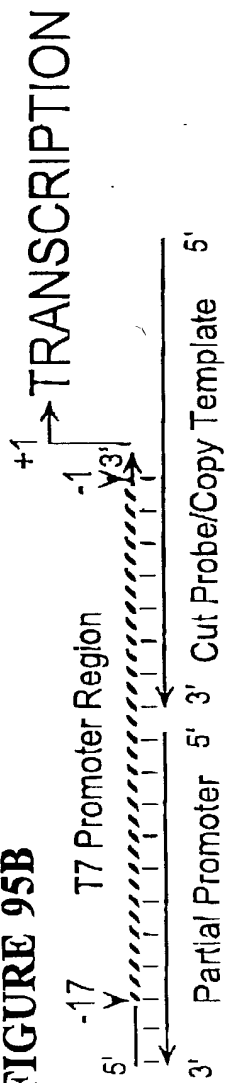


FIGURE 95C

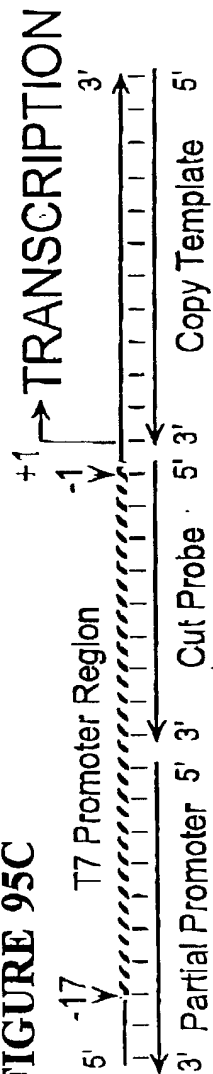
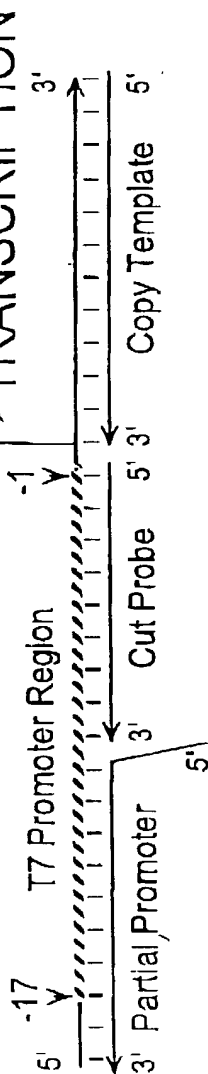
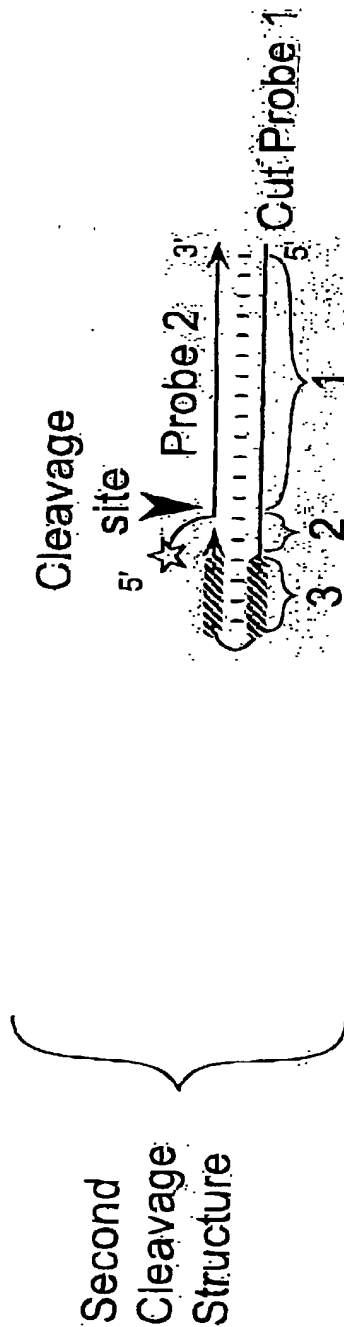
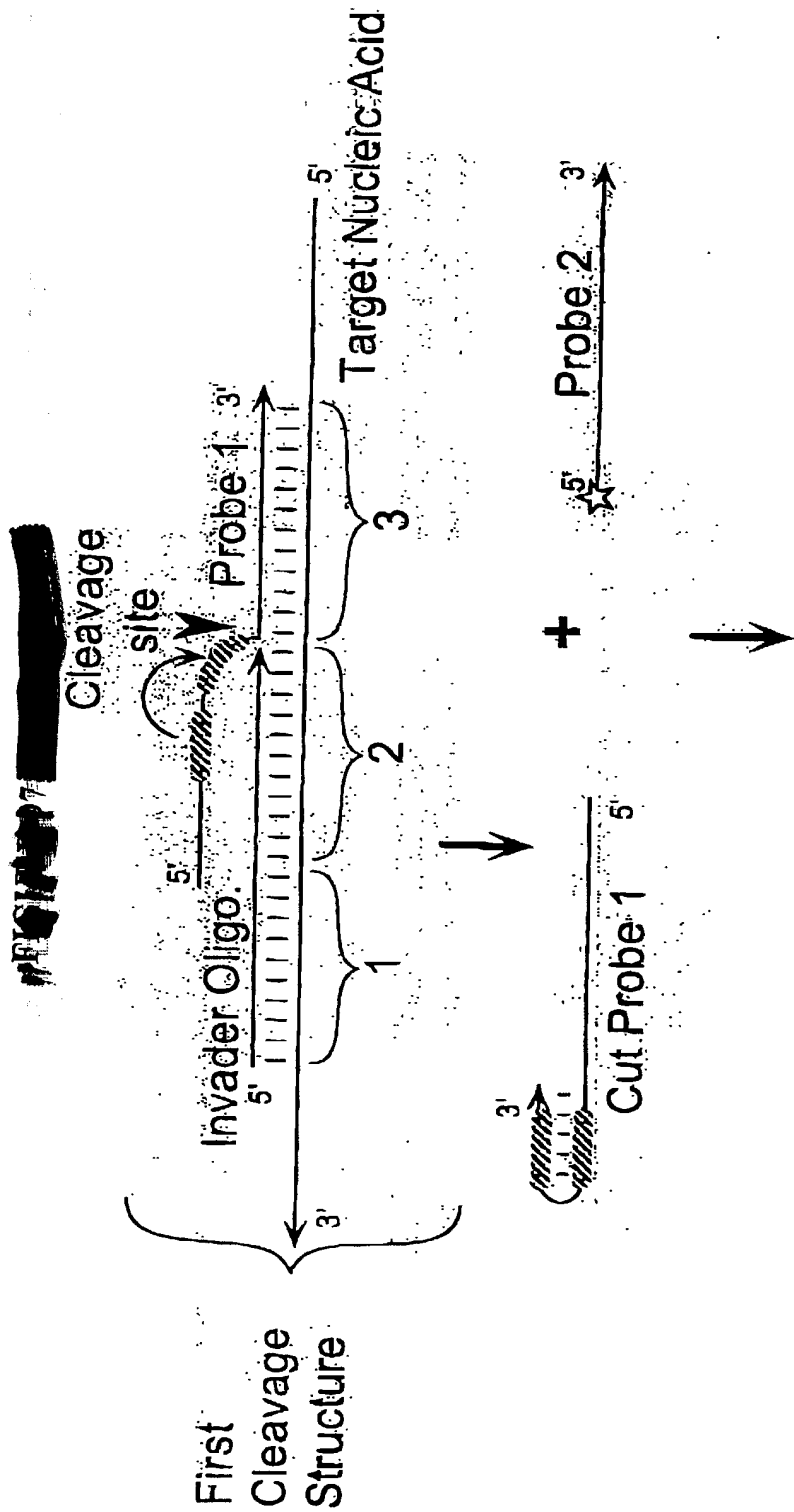


FIGURE 95D









114

## FIGURE 98

PR1 probeCleavage site  
↓

5'FITTTTCCAGAGCCTAAT G3'

IT3 Invader-Target

A<sup>A</sup> ACGAGCGTCTTT G3'  
G TGCTCGCAGAAAGGTCTCGGATTAATTTTTTTTT5'

IT3-8 Invader-Target

A<sup>A</sup> AGCGTCTT G3'  
G TCGCAGAAGGTCTCGGATTAATTTTTTTTT5'

IT3-6 Invader-Target

A<sup>A</sup> CGTCTT G3'  
G GCAGAAGGTCTCGGATTAATTTTTTTTT5'

IT3-4 Invader-Target

A<sup>A</sup> TCCTT G3'  
G AGAAGGTCTCGGATTAATTTTTTTTT5'

IT3-3 Invader-Target

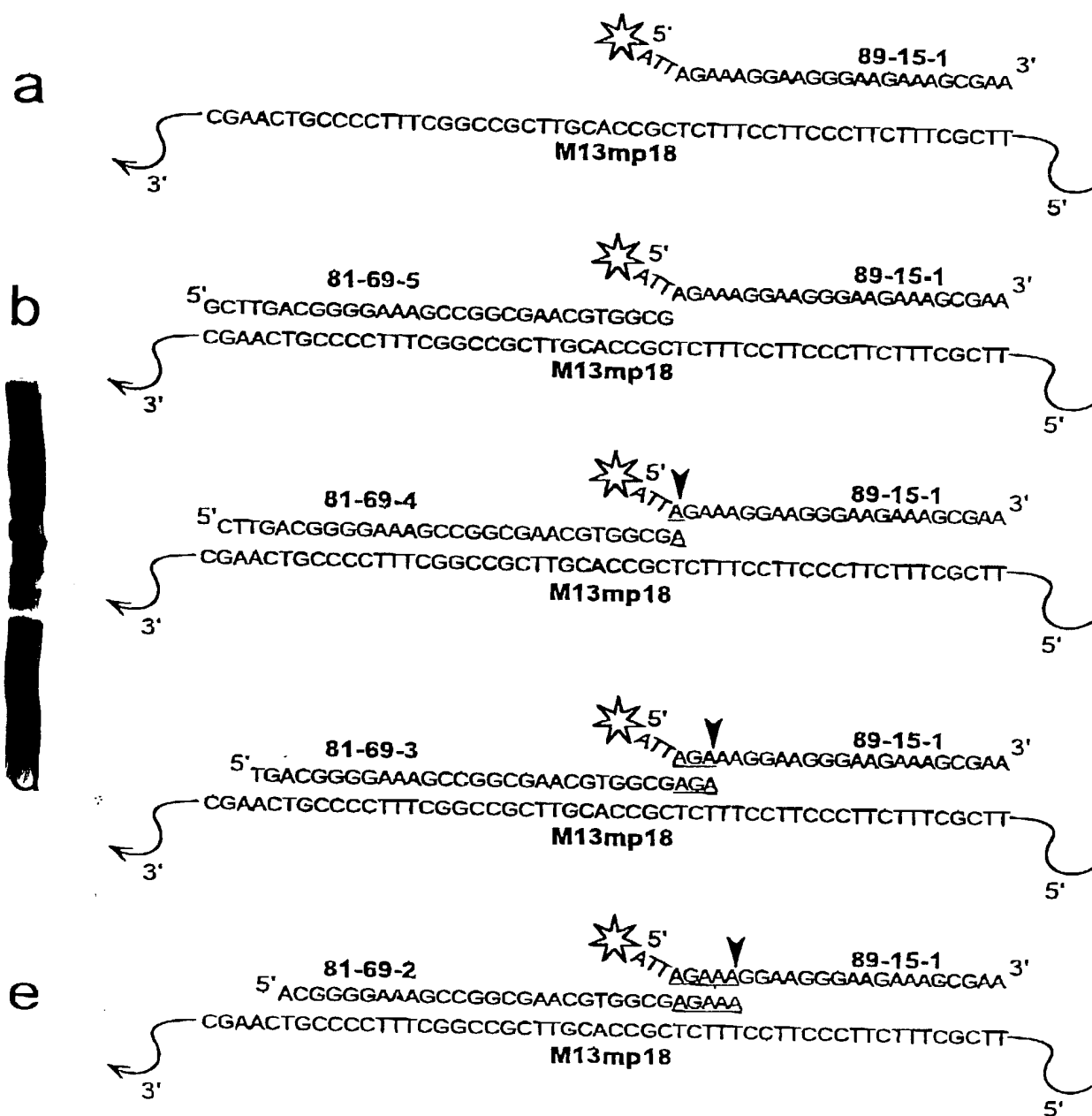
A<sup>A</sup> CTT G3'  
G GAAGGTCTCGGATTAATTTTTTTTT5'

IT3-0 Invader-Target

3'GAAGGTCTCGGATTAATTTTTTTTT5'

115

FIGURE 99



**FIGURE 100**

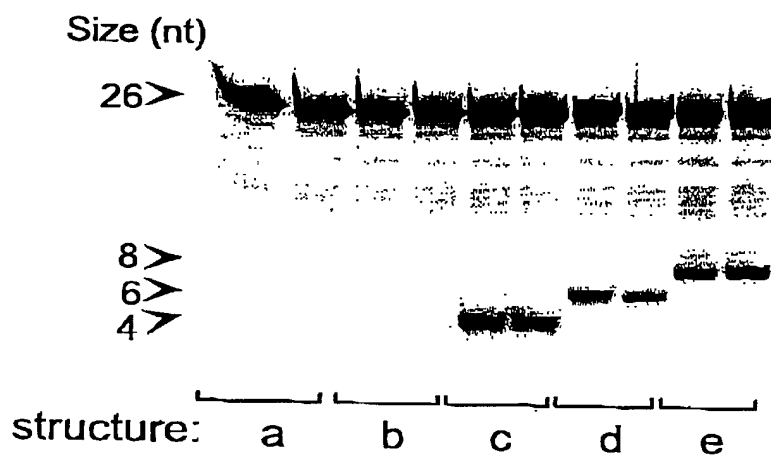
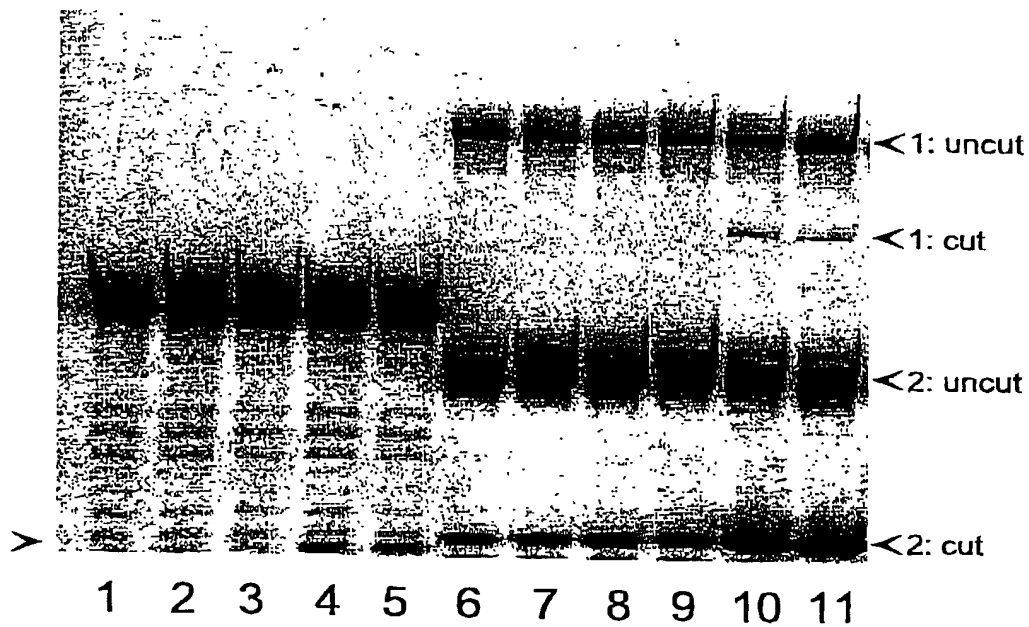
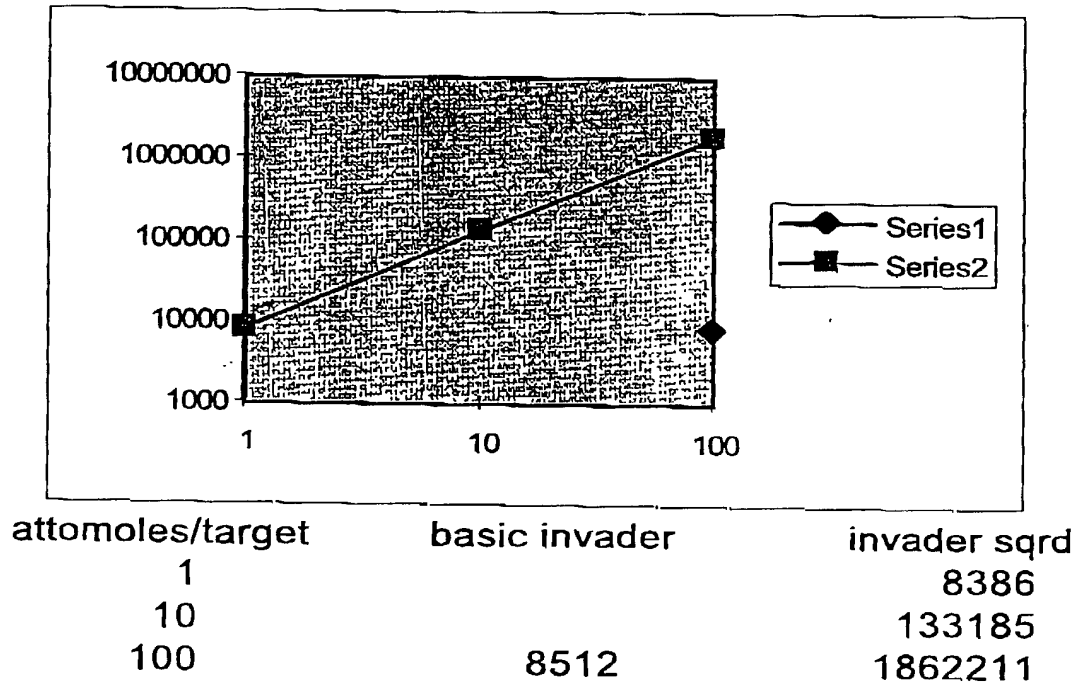


FIGURE 101

a



b



118

FIGURE 102

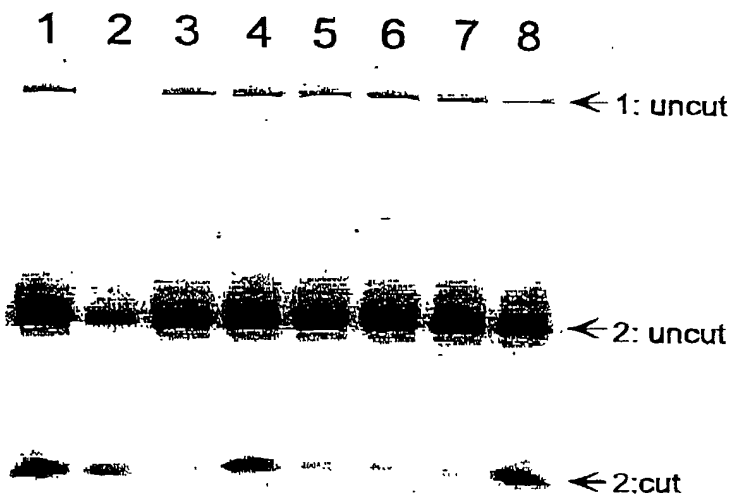
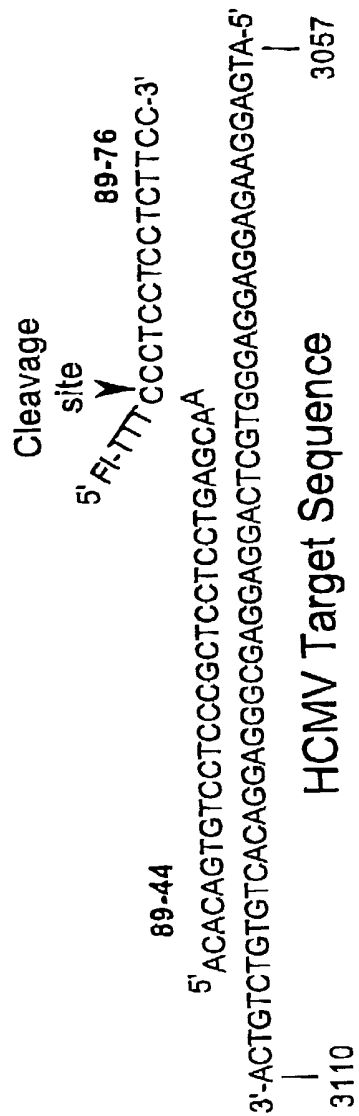
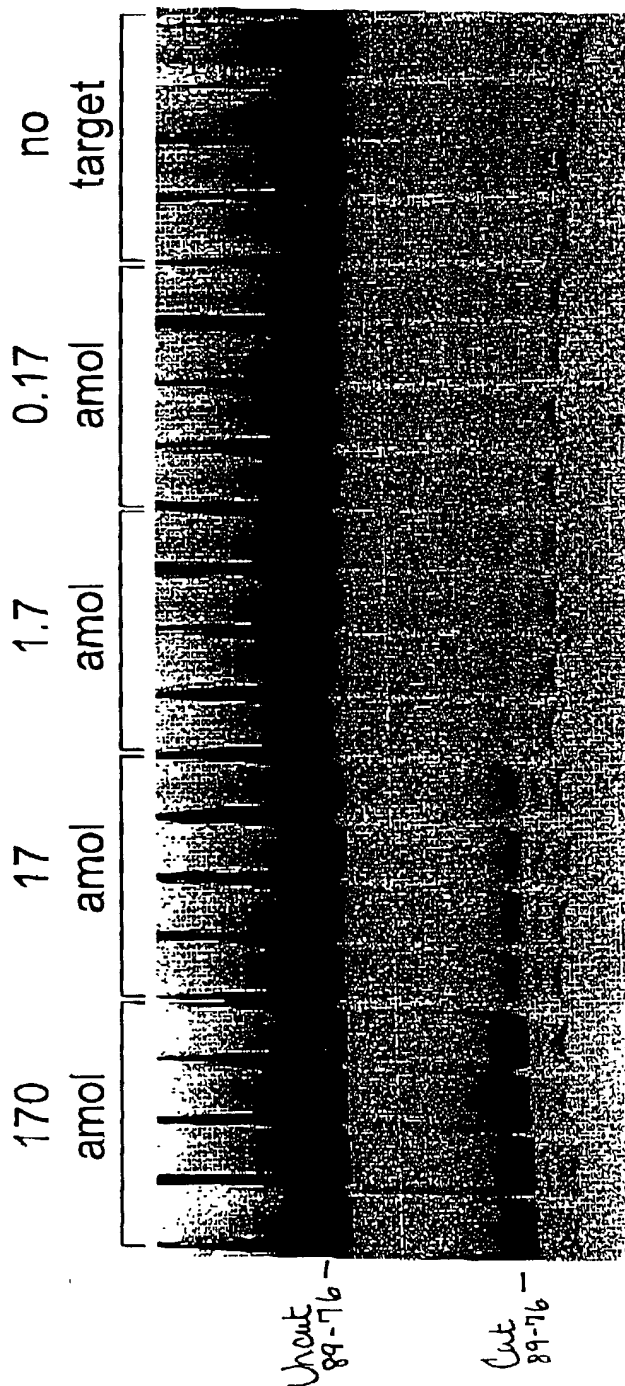


FIGURE 103





**FIGURE 104**



124